In Two Sections/Section I • OCTOBER, 1961

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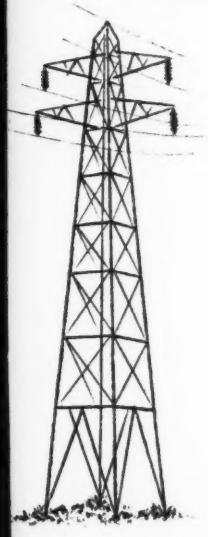
EEI BULLETIN

THE INVESTOR-OWNED ELECTRIC UTILITY INDUSTRY



How It Is
MEETING AMERICA'S POWER NEEDS

Comparisons With
THE WORLD AND THE USSR

And A Review Of
ITS PLANS FOR THE FUTURE

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Advancing America's Electric Leadership
Philip A. Fleger

Complete Listing of EEI Committee Members
Section II

PUBLISHED BY EDISON ELECTRIC INSTITUTE

ELECTRIC UTILITY INDUSTRY Statistics IN THE UNITED STATES

for MAY and JUNE 1961

Current Statistical Data Covering 100 Percent of Industry

(Includes Investor-Owned Companies, Cooperatives, and Government-Owned Utilities)—May and June, 1961

	Contiguous U. S. May, 1961	May, 1960	%	Alaska and Hawaii May, 1961	Contiguous U. S. June, 1961	June, 1960	%	Alaska and Hawaii June, 1961
SOURCE AND DISPOSAL OF ENERGY								
NET GENERATION* (Kwhr in Thousands)								
By Fuel Burning Plants	49,647,344	47,308,199	+ 4.9		51,730,773	49,473,528	+ 4.6	
By Water Power Plants	14,012,840	13,035,665	+ 7.5		13,460,194	12,446,738	+ 8.1	
Total Net Generation	**63,660,184**	**60,343,864**	**+ 5.5**		**65,190,967**	**61,920,266**	**+ 5.3**	
Net Imports from Canada and Mexico	343,117	471,060	− 27.2		261,998	481,568	− 45.6	
Purchases from Industrial Sources	114,260	215,971	− 47.1		115,142	290,897	− 60.4	
Energy Used by Producer	185,977	483,532‡	− 61.5		211,714	301,315‡	− 29.7	
Net Energy for Distribution	**63,931,584**	**60,547,363‡**	**+ 5.6**		**65,356,393**	**62,391,416‡**	**+ 4.8**	
Energy Lost and Unaccounted for	5,970,192	6,100,752‡	− 2.1		6,289,293	6,663,427‡	− 5.6	
Company Use and Free Service	158,691	170,048‡	− 6.7		163,958	180,323‡	− 9.1	
Sales to Ultimate Customers	**57,802,701**	**54,276,563‡**	**+ 6.5**		**58,903,142**	**55,547,666‡**	**+ 6.0**	
CLASSIFICATION OF SALES†								
NUMBER OF CUSTOMERS— As of May 31 and June 30	**May, 1961**	**May, 1960‡**			**June, 1961**	**June, 1960‡**		
Residential	51,707,417	50,632,012	+ 2.1	175,273	51,819,056	50,719,627	+ 2.2	175,655
Commercial or Industrial:								
Small Light and Power	6,762,190	6,709,562	+ 0.8	29,747	6,807,553	6,733,754	+ 1.1	29,795
Large Light and Power	528,980	450,538	+ 17.4	1,422	513,693	454,047	+ 13.1	1,413
Other Customers	197,873	204,224	− 3.1	998	197,521	205,338	− 3.8	1,000
Total Ultimate Customers	**59,196,460**	**57,996,336**	**+ 2.1**	**207,440**	**59,337,823**	**58,112,766**	**+ 2.1**	**207,863**
ENERGY SALES—During months of May and June, 1961 (Kwhr in Thousands)								
Residential	16,121,200	14,703,460	+ 9.6	69,941	15,827,250	14,853,931	+ 6.6	66,846
Commercial or Industrial:								
Small Light and Power	10,383,265	8,809,430	+ 17.9	39,738	11,402,890	9,601,228	+ 18.8	41,726
Large Light and Power	28,964,576	28,662,608	+ 1.1	69,322	29,332,354	28,945,190	+ 1.3	73,903
Street and Highway Lighting	491,398	436,599	+ 12.6	2,751	471,195	417,305	+ 12.9	2,804
Other Public Authorities	1,326,228	1,235,648	+ 7.3	693	1,372,032	1,306,586	+ 5.0	584
Railroads and Railways	369,995	375,704	− 1.5	—	358,100	362,839	− 1.3	—
Intrdepartmental	146,039	53,114	+175.0	535	139,321	60,587	+130.0	476
Total to Ultimate Customers	**57,802,701**	**54,276,563**	**+ 6.5**	**182,980**	**58,903,142**	**55,547,666**	**+ 6.0**	**186,339**
Revenue from Ultimate Customers (Thousands)	**$ 968,682**	**$ 911,481**	**+ 6.3**	**$ 4,847**	**$ 989,344**	**$ 935,101**	**+ 5.8**	**$ 4,841**
RESIDENTIAL SERVICE								
AVERAGE CUSTOMER DATA— for 12 months ended May 31 and June 30 (New Series)								
Kilowatt-hours per Customer	3,918	3,735	+ 4.9		3,930	3,755	+ 4.7	
Average Annual Bill	$96.38	$93.00	+ 3.6		$96.68	$93.12	+ 3.8	
Revenue per Kilowatt-hour	2.46¢	2.49¢	− 1.2		2.46¢	2.48¢	− 0.8	

* By courtesy of the Federal Power Commission.

† To conform with the new FPC "Uniform System of Accounts," the data reported as "Rural" have been assigned to other appropriate classifications.

‡ Revised to reflect estimates for non-reported data not previously included, and adjustments to earlier estimates.

October, 1961

EEI BULLETIN

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The EDISON ELECTRIC INSTITUTE BULLETIN is published monthly, except bi-monthly in July and August, by the Edison Electric Institute, an association of electric light and power companies in the United States and its territorial possessions. Its affiliate members consist of investor-owned electric utilities in North, Central and South America and contiguous islands in the Western Hemisphere.

The objectives of the Edison Electric Institute are:

The advancement in the public service of the art of producing, transmitting, and distributing electricity and the promotion of scientific research in such field.

The ascertainment and making available to the members and the public of factual information, data, and statistics relating to the electric industry.

To aid its operating company members to generate and sell electric energy at the lowest possible price commensurate with safe and adequate service, giving due regard to the interests of consumer, investor, and employee.

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CONVENTIONS and MEETINGS

1961

October

15-20 AIEE Fall General Meeting, Detroit, Mich.

15-20 National Safety Congress, Chicago, Ill.

16-18 NELPA Business Development Section Joint Meeting with Rate Research Committee and Public Relations and Advertising Committee, Davenport Hotel, Spokane, Wash.

18-19 Wisconsin Utilities Association Electric, Gas Operating and Sales Sections' Convention, Schroeder Hotel, Milwaukee, Wis.

18-20 Electric Council of New England 5th Annual Conference, Hotel Somerset, Boston, Mass.

23-24 EEI Electrical Systems and Equipment Committee, The Jack-Tar Hotel, San Francisco, Calif.

24-25 EEI Home Service Committee, Pick Congress Hotel, Chicago, Ill.

26-27 EEI Statistical Committee, The Homestead, Hot Springs, Va.

26-27 Canadian Electric Association General and Sales Sections Meeting, Bessborough Hotel, Saskatoon, Canada

26-27 PCEA Hawaiian Conference, Princess Kaiulani Hotel, Honolulu, Hawaii

26-27 Southeastern Electric Exchange Engineering and Operation Section Conference, Buena Vista Hotel, Biloxi, Miss. (Closed Session).

26-27 PEA Relay Committee, Hotel Penn Alto, Altoona, Pa.

27 Public Utilities Association of the Virginias Executive Committee, The Homestead, Hot Springs, Va.

30-Nov. 1 EEI Insurance Committee, Tides Hotel, St. Petersburg, Fla.

30-Nov. 1 Canadian Electric Association Engineering Section Meeting, Macdonald Hotel, Edmonton, Canada

31 EEI Sales Division Executive Committee, Hotel Roosevelt, New York City, N. Y.

November

1- 2 PEA Transmission and Distribution Committee, Shenango Inn, Sharon, Pa.

2- 3 Southeastern Electric Exchange Personnel Administration Committee Conference, Tampa International Inn, Tampa, Fla.

6- 7 EEI Personnel and Training Committee, EEI Headquarters, New York City, N. Y.

6- 8 EEI Accident Prevention Committee, Tutwiler Hotel, Birmingham, Ala.

8- 9 EEI Commercial Cooking and Water Heating Committee, New York City, N. Y.

9-11 PIP—1961 National Youth Conference on the Atom, The Palmer House, Chicago, Ill.

12-15 Air Conditioning and Refrigeration Institute Annual Meeting, The Homestead, Hot Springs, Va.

14-15 EEI Eighth Annual Area Development Workshop, DuPont Plaza Hotel, Miami, Fla.

15-16 Southeastern Electric Exchange Sales Advertising and Public Relations Conference, Tides Hotel, St. Petersburg, Fla.

16 NEMA Annual Meeting, Plaza Hotel, New York City, N. Y.

26-Dec. 1 ASME Winter Annual Meeting, Statler Hilton Hotel, New York City, N. Y.

27-28 EEI Commercial Lighting Committee, Rochester, N. Y.

27-28 PCEA Administration Services Section, Hotel Miramar, Santa Barbara, Calif.

30-Dec. 1 EEI Electric Space Heating and Air Conditioning Committee, Pittsburgh, Pa.

December

4- 5 EEI Residential Electric Heating and Air Conditioning Committee, Edgewater Beach Hotel, Chicago, Ill.

5- 7 EEI Street and Highway Lighting Committee, Tampa, Fla.

12 PIP Steering Committee, Edgewater Beach Hotel, Chicago, Ill.

1962

January

21-24 National Association of Electric Distributors Southern Regional Meeting, Palm Beach Biltmore, Palm Beach, Florida

24-25 Southeastern Electric Exchange Legal and Claims Committee, Roosevelt Hotel, New Orleans, La.

28-Feb. 2 AIEE Winter General Meeting, New York City, N. Y.

February

5- 8 National Industrial Electric Heating Conference, The Netherland Hilton Hotel, Cincinnati, Ohio

5- 9 ASTM Committee Week, Statler Hilton Hotel, Dallas, Texas

8- 9 EEI-AGA Accounting Conference Final Working Meeting, Sheraton Cleveland Hotel, Cleveland, Ohio

15-16 Missouri Valley Electric Association-Industrial and Commercial Sales Conference, President Hotel, Kansas City, Mo.

26-27 PCEA Business Development Section, Huntington-Sheraton Hotel, Pasadena, Calif.

Advancing America's Electric Leadership

By Philip A. Fleger
President, Edison Electric Institute, and
Chairman of the Board and President, Duquesne Light Co.

AS you well know, America's leadership in a number of fields is under serious challenge. But our leadership in electricity is undisputed.

We generate more power in a year than the next six nations combined, three times as much as Soviet Russia, which is closest to us in total production. With only about 1/16 of the world's population, our country now has about 1/3 of the world's power-producing capacity.

Industry Knows the Facts

Now, we in the electric industry are familiar with the facts of our country's electric leadership. We understand the importance of it, too. And, of course, we know our industry established that leadership.

But can the same be said of the general public? I'm afraid not.

I contend that the American people, if they recognize it at all, take our electric leadership as much for granted as they do the switch on the wall.

The fact is that the average American does not realize the importance of America's electric leadership in today's world. And he certainly does not know the role of our industry in that leadership. Consequently, he does not know what is required to preserve that leadership.

Yet here we stand today, faced with the most vigorous drive for government power in 30 years.

This means we've got to see to it that the American public does know the facts about our country's electric leadership.

Now, let's see what we have to work with.

First, the importance of America's electric leadership.

Every human being in the world—regardless of his nationality—is interested in prosperity at home and peace abroad. America enjoys a high level of prosperity at home and a certain peace abroad—uneasy though it may be—because of its productive capacity. And the key to production is electricity.

Every bit of our defense equipment—our Polaris submarines, our ballistic missiles, our atomic cannons and all the other weapons that will make any aggressor think twice before attacking us—all these have been built quicker, and better, and less expensively with electric power. Electricity is the life blood of our arsenal.

And we still have enough left over for our consumer production—to run our industries and our farms, to make automobiles, and refrigerators, clothing, and even yo-yos.

And still we have enough left over for home consumption—to bathe our homes in light, to cook with and heat with and wash with, to shave with and even to brush our teeth with. Our homes are the most comfortable and convenient in the world, because of electricity. Where other nations must choose between guns and butter, we have both.

Unmatched Productive Power

So that's the importance of America's electric leadership in the world today. It gives us a productive power unmatched by any other nation, a productive power that enables us to have defense and prosperity at the same time. Other nations who wish to concentrate on one of the two—defense or prosperity—can do so only at the expense of the other. Parenthetically, we might fervently wish that the Russians would turn their major attention to their own prosperity for a while.

Any doubt that the Russians realize the importance

Mr. Fleger in recent weeks has presented this address before conventions and meetings in various parts of the nation.

of our country's electric leadership was dispelled last spring when the president of the Academy of Science in Moscow stated the official goals of Soviet science. Number one priority, he said, goes to electrification of the country. Even rocket research was further down the list.

So much for the importance of America's electric leadership.

Now let's look at the role our industry has played in its development.

Going back into history for a moment, on Oct. 21, 1879, Edison demonstrated his successful incandescent lamp. But even more important, on Dec. 31 that year he demonstrated a central station system that lighted a section of Menlo Park. That supplied the missing principle—transmission. And so it was that New Year's Day, 1880, was the first day of the electrical era. Our industry was born that same New Year's Eve.

Our principal business for the past 82 years has been generation and transmission, making electricity and taking it to where people can use it. Our chief contribution has been supply and demand, in reverse order. The tremendous increase in the demand for electric service has not just happened. It has been created by selling, and not by selling appliances or kilowatt-hours, but by selling the convenience and economy and efficiency of using electricity for more and more tasks.

In the early days, this meant power company salesmen taking electric irons from door to door and demonstrating their effectiveness. Today it means selling Medallion Homes by the subdivision, and even by the town. It means selling on a mass scale, through national advertising media—as is carried on by the Edison Electric Institute Live Better Electrically program. And it means selling the advantages of electric living, not just a series of appliances.

Our sales programs have played an important part in creating and maintaining the economic advantages of high load factors and wide diversity. These two characteristics of electric system operations have been vital to the growth of the industry, for they have made it possible for central stations to serve customers —even very large industrial customers—at lower cost than could an isolated generating unit on the customer's premises.

Tireless Research and Development

The supply of electricity has always kept pace with demand because we have been tireless in research and development. Never once in the history of this industry have we said, "This is good enough. Let's let it go at that."

Over the years the heart of the electric utility system, the generator, has been transformed several times. Edison's dynamo, the "long-waisted Mary Ann," has been replaced by the huge turbine-generators of today, and we are working to make even these outmoded.

Today, the investor-owned companies have committed some $700 million in 24 nuclear power projects with an eventual capacity of 2 million kilowatts. We have five nuclear power plants in operation, more than any other nation in the world. These plants have a total capacity of 388,500 kilowatts. Russia has only one nuclear plant devoted to power production—and that has a capacity of only 5,000 kw. The rapid development of atomic power in this country in the seven years since 1954 is a story that is at least as important to the people of the world as the latest Russian accomplishments in space, and we should be telling the world about it.

Things to Come

Tomorrow, we'll be driving generators with the energy from thermonuclear fusion. We're also experimenting with direct generation by the thermionic tube, by the conversion of chemical energy, by the action of sunlight on a solar cell, and by ionized gas in a magnetic field. Today the output from these sources is small, but so was the output of the Mary Ann 80 years ago.

If the generator is the heart of our business, transmission lines are its arteries. Our development of higher and higher transmission voltages has enabled us to transmit more and more power, for greater and greater distances, at ever-decreasing line losses. And this has permitted a continuing process of interconnection and pooling, as a result of which nearly all the electric systems east of the Rockies are now interconnected. West of the Rockies, interconnected operation has been a fact for several years, both in the Pacific Northwest and the Pacific Southwest.

What I've been trying to say is this. Eighty years ago power was animal power, man power, or the power of a creaking water wheel or a rickety steam engine. The revolution that has taken place in the application, the production, and the delivery of electric power during the past 80 years constitutes one of the greatest advances in all of the history of mankind.

Now, this revolution was not the product of government ownership and operation in the power business. It was the product of individual invention and initiative, sparked by Edison's early discoveries and stimulated by the profit motive. It was, in other words, a product of our traditional American system of free enterprise.

Yet, at the very moment that our Federal government is exhorting the American people to prepare for a life-or-death struggle with international communism, there are some in the government who advocate the adoption of the Communist principle of government ownership in the power business.

Since before the turn of the century, the Federal government has had an interest in power development. But in those days it was incidental to flood control and navigation. The government really entered the power business during the 1930's with the establishment of the Tennessee Valley Authority. Then, when Congress blocked attempts to establish other valley authorities, such governmental agencies as the Bonneville Power Administration, the Southwestern Power

Administration and the Southeastern Power Administration were set up.

During the past eight years there was a sharp drop in new starts of government power projects, and many of us thought this wasteful and unnecessary encroachment on our free enterprise system was finally going to stop. But that isn't the way it has worked out.

In the election last November, the arguments for government power carried no weight with the voters. In virtually every state in which vast government spending has been demanded for government power projects the voters showed their preference to be served by the investor-owned electric companies. But the advocates of government power have completely ignored the expressed preference of the people. They have taken a new lease on life and are going farther than ever before.

What are the specific goals in the current drive for government power? One of them seems to be building up the rural electric cooperatives into service companies for industrial and urban areas. Through the Rural Electrification Administration, these cooperatives are being financed with 2 percent money, costing them about half what it costs the government. So the American taxpayer is paying the bill for this expansion.

Another goal seems to be preventing any of our companies from undertaking any hydroelectric developments in major river basins. Since these projects can be financed in the free market, it would be an unnecessary waste of the taxpayer's money as well as a violation of our free enterprise system to have the government undertake them.

Still another goal seems to be the creation of a nationwide transmission network for Federal power. This would duplicate our own interconnected network, would involve more waste, and would serve no useful purpose.

In the United States, government has had a long-established role of regulator, or watch-dog, if you will, to assure fair play in business. But when government, with its police powers and powers of taxation, enters a business in which its nation's own citizens are properly performing, it can compete in a way which is completely unfair.

Government's Unfair Competition

In the power business, government ownership has created a glaringly unfair form of competition. This fact cannot be stressed too often.

The basic tactic of the advocates of government power is quite simple. They offer electricity at less than cost to certain sections of the country, like the Tennessee Valley, through exemption from taxes and the loan of money at less than the going rate in the free market. This simply involves taking money from some citizens and giving it to others. As a result of this devious and un-American practice, 20 percent of the users of electricity in this country are being excused from paying more than three-fourths of the taxes that the other 80 percent are required to pay through their electric bills.

Now, we, the investor-owned electric utility companies, are prepared to bear our full, fair share of the cost of government, and we believe our customers are, too. And, since Russia has declared economic war upon us, this is a time when all Americans need to pull together and to do so with the knowledge that everyone is bearing his proper portion. So it seems both a poor economy and a morale-reducing inequality to continue to allow 20 percent of the nation's electricity users to avoid paying their proper share of taxes in their electric bills—just because they happen to be customers of governmentally financed power projects.

But there is much more at stake here than our own interests, important as they are to us. As a nation, we appear to be facing a long, hard fight with international communism in which our government will need huge sums for defense. Surely, we do the broad national interest a service in pointing out that over the next 20 years more than $143 *billion* for construction of electric company systems will come from the operation of our industry in a free enterprise economy—a burden government need not and should not bear. And not only that, but over the next two decades the investor-owned electric companies will contribute nearly $102 billion in taxes to Federal, state and local governments, more than half of this total to the Federal government. Even in the stratosphere of Federal governmental finance these are very large sums.

I saw a statistic several months ago that appalled me. It was a simple one: the interest on the U. S. national debt amounts to more than one million dollars an *hour*. Yes, our inability to comprehend the genuine magnitude of the millions and the billions our government spends may have more influence on irresponsible government spending than we realize.

$5½ Billion in Federal Projects

How many people understand the fact that government-in-the-power-business now represents an investment of about $5½ billion in Federal projects and that there are plans for spending some $10 billion more? These are funds that are vitally needed for our national defense and in other areas of legitimate government activity. Government-in-the-power-business drains money away from these areas. And this is all the more serious because government expenditures are totally wasted in the power field. They are not necessary at all.

When a member of the general public is faced with a welter of conflicting statements concerning benefits, costs, and merits of any given project, it may appear far easier to ignore the whole business than try to understand it. But it only takes one simple question to cut through the confusion: "Can these power facilities be financed in the free market?" If the answer is "yes," then the answer to government financing must be "no."

Our companies are planning today for the power needs of 1970, 1980, and even the year 2000. As in the past, the funds needed to finance this expansion can be provided by the millions of Americans who voluntarily

Tells Utility Story

Philip A. Fleger, EEI President, presides at press conference in New York to launch the Institute's presentation, "The Investor-Owned Electric Utility Industry," which is told in a series of charts with accompanying text (see special section in this issue, beginning on page 336). C. E. Oakes, Chairman of the Board of Pennsylvania Power & Light Co., is shown at Mr. Fleger's left.

invest their savings, directly or indirectly, in electric company stocks and bonds. This has been the foundation of America's world leadership in electric power supply.

The pattern for progress in the electric industry was laid out long ago. The motivating spirit in this pattern is free enterprise—and government power violates it. Government power is wasteful. It is discriminatory. And most important of all, it is wholly unnecessary.

So it's up to us to advance America's electric leadership. That leadership is of paramount importance in the world today—but the average American doesn't realize it. It has been established by our industry, operating under free enterprise—but the average American doesn't know it. It is threatened by the continued growth of Federal power—but the average American doesn't recognize it.

The question is: what should we, as an industry, do about it?

First and foremost, we must continue the performance that has established that leadership in the first place. We must continue to sell electrical living and we must continue to build to take care of the demand we create. We must continue to serve the American people as we have served them for the past 80 years.

Second, and equally important, we must convince the American people of the importance of America's electric leadership. We must then convince them that we built that leadership and that we're the best qualified to advance it. We must convince them that government competition threatens that leadership.

We must use every available medium. We must use advertising in the newspapers, on radio, and television. We must use our bills and we must use direct mail. We must use display space in our showrooms and offices. We must make speeches and we must even hold street corner conversations.

This is what we can do, company by company, across the land. And this is what we must do everywhere for we're all in it together.

A Hells Canyon, Colorado River storage project, a generating and transmission co-op in Indiana, a public utility district election in Washington—these are not local battles. They are skirmishes in a mammoth struggle that threatens every part of our industry and our traditional American system of free enterprise as well.

Our people have made progress in getting the American people on our side. Twenty years ago, according to surveys, 55 percent of the public favored government ownership of electric utilities. Today that figure has dropped to 38 percent. By any standards, that's a substantial gain.

But, I repeat, the advocates of government power have taken a new lease on life and are going farther than ever before. We must match—yes, out-match—their aggressiveness in bidding for the support of the American people. All it takes is a willingness and a will.

We have plenty of experts in communication in our companies. Top management should give them the assignment and their full support. But that is not enough. All our people must work for the support of all the people with whom they come in contact.

The Edison Electric Institute has recently prepared a book of charts—colorful and easy to understand—that tell how investor-owned companies are meeting America's power needs, compare our record with that of other countries, and review our industry's plans for the future. I urge every company to make use of these charts and the other communications tools that are available to us. The advocates of government power are increasing their efforts. We must add vigor to our own.

Through the years, our companies showed vision and skill and courage in building America's electric leadership. We must now show vision, skill and courage in bidding for the support of the American people.

Crane Station Dedicated

THE new Charles P. Crane Steam-Electric Generating Station of Baltimore Gas and Electric Co. was dedicated Sept. 19. Located about four miles east of the Middle River community in Baltimore County, the plant houses the largest and most efficient generating unit on the company's system. The first 191,000-kilowatt unit was recently placed in commercial operation, and a second unit of similar size at the same site is under construction.

The new station is named in honor of Charles P. Crane, Chairman of the Executive Committee, and former president and chairman of the board of Baltimore G&E. Mr. Crane began his career with the company 51 years ago, in the executive department.

Vast Potential Farm Market Seen by Industry at Power Conference

THE Eighth Annual National Farm Power Conference, which had as its theme, "Building for the Future," brought together all elements of the electric industry to share ideas for building load and sales. The meeting, sponsored by the Inter-Industry Farm Electric Utilization Council, was held in Minneapolis, Minn., Sept. 20-22.

Among the principal subjects discussed were:

- How all elements of the electric power industry can work together for their mutual benefit.
- The electric water heater market, and what can be done to stimulate water heater sales.
- Selling electric heat through qualified contractors.
- Farm electrical control and educational problems.
- The important farm lighting market.

Growth Essential

L. H. Roddis, Jr., President, Pennsylvania Electric Co., told the conference that "our future and that of our individual utility, be it financed by government loans, or stocks and bonds sold in the market place, will in large measure be determined by the progress achieved by the electric industry as a whole. In our high capital cost industry, growth is essential to continued financial help."

"It is in the development of new ways by which customers can use electricity creatively, to make their lives richer and more satisfying, that electric companies will more easily improve their load factor," Mr. Roddis said. "It is this field of market research and the corollary field of sales promotion that offer rich rewards for the maximum push by everyone engaged in the electric industry."

"We cannot permit a difference in philosophy to interfere with finding new and better ways to meet this type of competition. The customer is far more interested in the advantages of electric space heating than he is in whether the kilowatt-hours were delivered over REA-financed lines or those of an investor-owned utility. His interest in a flameless water heater is in direct proportion to his need for a water heating device."

"In an effort to 'inoculate' all Pennsylvanians with this same confidence in the aesthetic values of electricity," Mr. Roddis said, "Penelec has been coordinating its sales promotional activities with the 14 co-ops in its area. It offers, free of all cost, truck posters, office displays and dealer advertising material to all co-ops which wish to join in its sales programs. This greatly increases the advertising impact in the area and makes it easier for appliance dealers to provide added sales momentum.

"By no means should this program be construed that Penelec considers its sales programs to be outstanding. Rather it is an effort to supply sales aids in bulk which are quite costly when produced individually on a small scale.

"In fact, I have a feeling that our promotional efforts, like most of those in the industry, lack a strong customer appeal. In selling the idea that electricity is as close as the switch and as dependable as the sun, utilities have removed much of the glamour from their product. I wish some bright sales or advertising man would put as much sex appeal and desirability into an electric clothes dryer as Elizabeth Taylor bestowed on the telephone in 'Butterfield 8.'

"In support of my belief that electrical progress requires understanding of purposes and agreement on procedures between all those engaged in electrical activities, I began meeting personally with co-op leaders shortly after assuming the presidency of Penelec."

"I still believe that cooperative systems and investor-owned companies not only can, but must work together to beat back the competition of other forms of energy," Mr. Roddis declared.

N. M. Clapp, Administrator of the Rural Electrification Administration, said, "I believe that all segments of the electric industry can grow and prosper, if we do the right sort of job."

"It will take imagination, hard work, and persistent selling to achieve tomorrow's record consumption of electricity," Mr. Clapp said, "and I believe that it is a job which will require coordinated effort from all parts of the industry."

Discussing the role of the Inter-Industry Farm Electric Utilization Council, Mr. Clapp asserted that "the answer to the question as to whether the council can serve a significantly useful purpose in 'building for the future' of the electric industry will require more than convention-type sales promotion effort. The pep talks about building loads are instructive. But we believe the real job requires a brand of inter-industry cooperation built on something deeper than this—it must be based on mutual respect for each other's role in the industry, and a genuine recognition of each other's contribution to the success of the industry."

In his address, "Second Best Is Not Good Enough,"

R. Z. Sorenson, Utility Sales Department Manager, Westinghouse Electric Corp., discussed the electric water heater situation in the United States.

He said that back in 1948 the electric dryer business was a very new business, which has grown tremendously since that time. Against 52 million wired homes in the country, there is only a 20 percent saturation of dryers—both gas and electric—compared to 95 percent saturation for electric washers, he said. This, Mr. Sorenson pointed out, means there is a big future in electric dryers. He told the conference that "there is a very good possibility" that by 1962 sales of electric ranges will pass sales of gas ranges.

In contrast, he emphasized that the sales of gas model water heaters have steadily increased, while electric models have steadily fallen behind. In 1948, gas models outsold electric heaters by 1.45 to one, he said, and last year by almost four to one.

Declaring that liquid propane gas model water heaters last year accounted for 12.5 percent of the gas models sold, Mr. Sorenson explained that this figure represented 330,600 units against a total of 668,500 electric models. "That means," he added, "that they sold just under 50 percent as many water heaters in small town and rural areas as the entire electrical industry sold in all markets."

Second to House Heating

"Next to electric home heating, the water heater represents your greatest potential for rapidly increasing the average residential consumption of your customers," he said. "An electric home heating installation may mean an additional 20,000 to 25,000 kwhr in annual consumption, but an electric water heater by itself means in the neighborhood of 4000 kwhr, and there is no other domestic appliance that comes anywhere near to that annual consumption."

As for the future of the electric water heater, Mr. Sorenson said:

"Many among the investor-owned utilities and among the rural electric cooperatives are recognizing the extreme importance of going after the electric water heater load. Among their promotions and sales plans have been some good ones that have proven successful. As a result they have made electric water heater sales go up in their areas during the past months when appliance sales generally were down.

"The leaven is in the yeast and is working so far as electric water heaters are concerned. More and more power suppliers have firmly decided that the very poor second best of electric water heaters has not been good enough. They are doing something about it in many ways. They are, furthermore, setting some new trends for other power suppliers to follow.

"I predict that eventually the tide will turn. How quickly this will happen depends upon all of us in the industry, but primarily upon you, the power supplier, for you must take the leadership in creating the interest within the territory which you serve.

"The challenge is great—the stakes are high—for electric water heaters placed in homes can eventually carry along with them the other two big load builders—ranges and dryers. They can also have a profound effect on the determination of just how soon the ultimate goal of the Total Electric Home becomes the commonly accepted way of life."

"Electric water heaters can be sold," Beauford Johnson, Manager, East Central Electric Association, Braham, Minn., declared. Discussing a 1959 water heater promotion by the association, Mr. Johnson said:

"The water heater promotion was scheduled for 90 days commencing Oct. 1, 1959. Dealer meetings were called prior to the kick-off date, with complete explanations of all phases of the promotion. Through the unified acceptance of our association in the past, most of the dealers went along with the proposal.

"The promotion was set up in this way—each dealer agreed to floor plan at least three 80-gallon heaters; each dealer would advertise bi-monthly with the association filling in the other two-week periods. Radio spots were purchased over the entire period, stressing safety, random placement, quietness, cleanliness and steadfast economy. The dealers were offered incentive in that an expense-free trip to Washington, D. C., would be awarded to each dealer and a guest for selling 30 or more units. One of our towns had only 18 electric water heaters sold in the previous five years, whereas during the promotion a total of 45 electric water heaters were placed on the line by one dealer. This is the sort of results that open the eyes of a dealer and point out the large potential that a promotion of this nature creates.

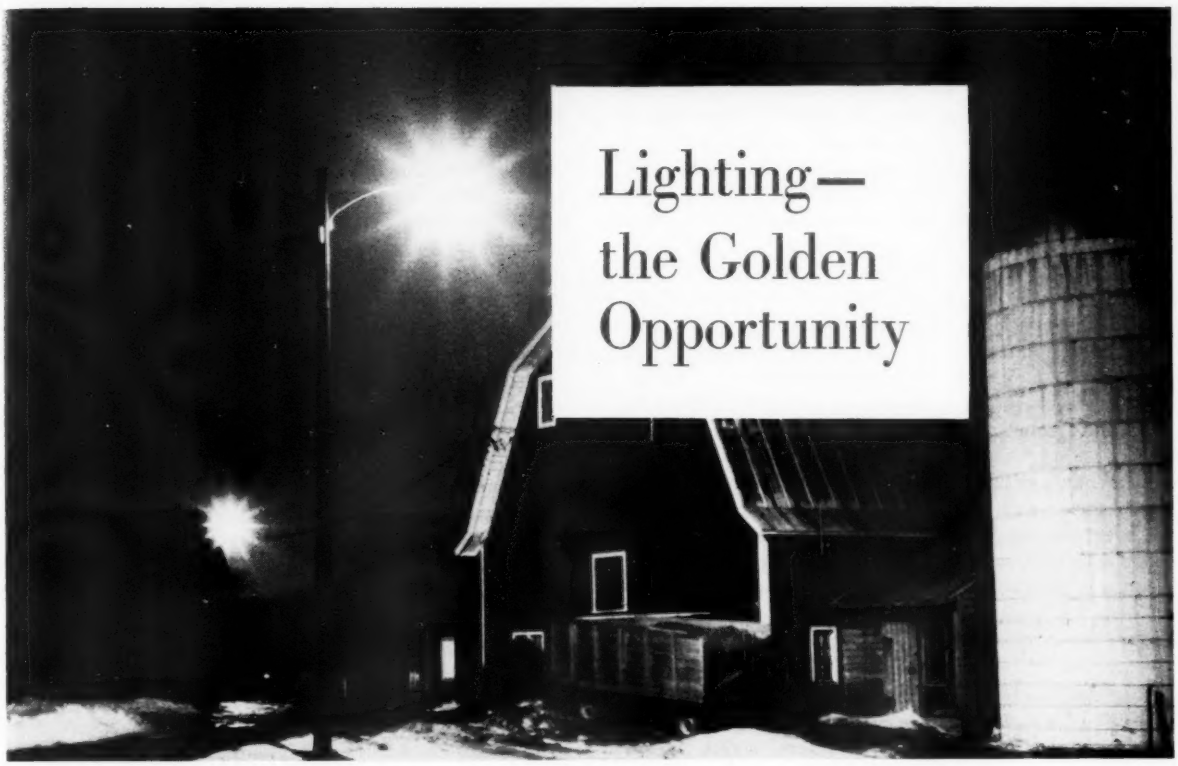
"At the opening of the promotion things moved rather slowly until the advertising and word of mouth took effect. The first carload of heaters was gone in about three weeks, so quickly that we had not time to re-stock our warehouse with an inventory. The second, third, fourth, fifth, yes, and even the sixth and seventh carloads arrived during the promotion. Our supply was completely exhausted at the end of the promotion."

"At the end of the promotion at the coming of the new year, we knew that low-wattage, large-tank heaters could be sold. In the 90-day promotion, 496 80-gallon heaters were placed; 120 52-gallon heaters were placed; 80 gas and 120 oil water heaters were surrendered, stacked up and crushed by the boom, and the remains were sold to the local junk dealer. Also placed on the line were 35 used electric heaters completely reconditioned. A grand total of 651 water heaters and 100 electric ranges had been sold to the consumers of East Central Electric Association."

E. F. Olver, Associate Professor, Department of Agricultural Engineering at the University of Illinois, told the conference that the farmer must be sold on the idea of going "all electric."

"If he sees the advantages of low-cost operation, low maintenance, and low first cost in electrical equipment, then going 'all electric' is a natural for him," Mr. Olver said. "The all-electrified farms are valuable

(Continued on page 352)



Lighting—the Golden Opportunity

By E. O. George, *Vice President, The Detroit Edison Co.*

UNLIKE the weather that "people talk about, but don't do anything about," we have neither talked much about farm lighting nor been truly active in its promotion. Without better lighting, farm electrification is a job only half done.

There is every reason to suspect that farm lighting has not yet reached the levels of urban residential lighting. Since most lighting authorities concede that typical home lighting is only 20 percent adequate, if farm lighting is only half that good, this is pretty bad! It's a sad testimonial on a much neglected electrical market.

It is true that most utilities have done local farm lighting promotion, some concentrating on poultry house lighting, some on dairy barns, or as others are now doing, promoting dusk-to-dawn yard lights. It is also true that many of us work with farm youth organizations, agricultural colleges, and the Better Light—Better Sight Bureau to help educate the farm family on the merits of better lighting and how to bring it about.

But as a national industry we have generally been content to let lighting tag along as almost an afterthought with other sales programming. This is true in both the residential and rural markets, as well as the industrial market. In commercial markets we have done a good job. Perhaps this indicates that our best selling is done in response to customer demand rather than in creating the demand ourselves.

Recently, the EEI Farm Group published a brochure which reproduced 24 advertisements on farm electrification put out by utilities representing nearly every area in the United States. In only two of these ads was lighting the central theme; in two others the word was mentioned; the remaining 20 were devoted entirely to other electrical uses—many of which are much less load than lighting. Is it that lighting lacks glamor? Is it not salable? Do we think the market is already saturated?

Another indication of lighting neglect is found in the farm magazines. Twenty-two recent issues representing three of the leading farm publications contained nothing on farm lighting. Obviously, they don't think the farmer is interested in lighting either. In a fourth publication, there were only 25 articles on lighting listed in its 1960 subject index. This compares to 123 mentions of materials handling, 70 on processing, 60 on refrigeration and cooling, 57 on heating and brooding. We know that more than 95 percent of the farmers read one or more farm magazines. We also know they don't read much about lighting in them. This is not a criticism of the farm publications—it is a criticism of ourselves for permitting lighting interest, news and feature value to sag to this low point.

Obviously, if we have not put as much time, effort or

An address before the Eighth Annual National Electric Farm Power Conference, Minneapolis, Minn., Sept. 21, 1961.

imagination into selling lighting, either we did not consider it profitable business or we felt that lighting load and revenue would grow without active promotion. As to the profit features of lighting business, a good many reasons have been advanced to show that it is well worth some active promotion.

In the first place, it has desirable load characteristics, with a high diversified load factor which lends stability to the system load curve. This is especially true of farm lighting.

Lighting is also something that, once sockets are available, can be gradually upgraded. It's not a load that will be lost to competition; it's the one really non-competitive application on every one of the electrified farms in our nation.

But perhaps the best reason to promote lighting is that light symbolizes the best in customer satisfaction with electricity. The consumer, whether he is an urban home owner, a retail store manager, or a farmer, thinks first of the electric utility as the "light company." Have you ever noticed how the best-lighted home has the most appliances, how the owner of an attractively lighted store is willing to hear about other ways electricity can help his business? For the farmer, too, light can become the symbol of the finest in electrified farming.

Three Farms Surveyed

Lacking any very complete or reliable statistics on farm lighting use, I asked three of our Detroit Edison customer business representatives each to survey one farm in the county in which they work. For this purpose, they were to pretend that the farmer had asked them to analyze his home and farm lighting and sincerely to recommend whatever increased bulb sizes and new sockets he should have. I think the findings of these surveys were a little surprising to the people who made them, and you'll find them interesting and indicative of the potential that yet lies unchallenged in the field of farm lighting.

Many of us probably think of automobiles or vacations when Michigan is mentioned, but agriculture, too, is a surprisingly large industry, with about 112,000 farms, and farm employment of about 180,000 persons. Even in the highly industrialized region that my company serves, we manufacture around Detroit, and raise beans, wheat and cattle to the north. In total, we serve about 24,000 farms, with average annual use of about 6600 kilowatt-hours.

The three farms we surveyed had higher than average use, so it's fair to assume they are also more electrified and better lighted than the average. Thus the recommended improvements should be considered as the minimum that might be expected from a successful promotion to all farms.

The first farm surveyed was primarily a dairy farm, about 120 acres, with 25 to 30 milk cows. The farm home was 40 to 50 years old, as were most of the outbuildings. Annual electric use during the recent year was 18,388 kwhr, plus unmetered water heating. The farmer, his wife and five children had most of the domestic conveniences, including electric clothes dryer, automatic washer, range, freezer, and refrigerator. Electric equipment used for farm operations included a bulk milk cooler, milking machine, water heater, water pump, electric fences, and various shop tools.

There were 2920 watts of connected lighting load in 57 lighting sockets throughout the farm and home. This is about 50 watts per socket, or about 30 watts per socket less than in the typical post-war residence in the Detroit area. Six empty sockets were found, and two buildings that were not even wired. Estimated use was about 2000 kwhr annually. This would be $50 in revenue at 2.5¢ per unit.

As for potential revenue, our business representative recommended an additional 3700 watts—more than twice the existing lighting. He estimated that this would just about double the lighting kilowatt-hours from this customer and increase our farm lighting revenue by another $50 per year.

On the second farm, watts per socket averaged 100, with 41 available lighting outlets totaling 4190 watts. Although there were fewer outlets than on the first farm, the higher average wattage still brought our lighting estimate to about 2000 of the 11,056 kwhr consumed by all electrical applications on this farm during the past year. Our representative still recommended 1800 additional watts of lighting, which should yield close to 1000 more kilowatt-hours per year, or $25 in revenue. Then, with the friendly atmosphere created during the lighting survey, the farmer also showed interest in the barn cleaner, a barn ventilator and a clothes dryer for the home.

With only 2650 watts of lighting now installed in the third farm, our representative recommended 7200. For example, the nine-room home had only 750 watts, less than 100 per room. This should be doubled. In the milk house, 200 watts should be increased to 400; in the dairy barn 700 watts should be 1400; in the hay mow 200 should be 600; in the sheep barn 200 should be 800. In the grain storage area, the chicken house, the tool shed and the garage there was no lighting at all. Our advisor recommended a total of 1900 watts in these buildings. While this nearly tripled the wattage, it would add about double the kilowatt-hours, or $45 more in revenue.

Averaging the potential added revenue possible if each of these farms could be brought up to desirable lighting levels, we get nearly $40 per year from each. Is this profitable? I think so, for it's roughly the equivalent of adding a barn cleaner, a ventilating fan and a clothes dryer. Or it's nearly the revenue from operation of an electric water heater. This raises the question of why we devote much of our promotional effort to these other uses and neglect our most natural market, home and farm lighting.

It has been estimated that 6 billion kilowatt-hours are used by the farms of our nation each year for just the lighting of shelters housing crops and farm animals, and necessary farm activities. It seems obvious that even this impressive figure can be at least doubled,

and this counts the light needed for only sight and safety, let alone the infrared or ultraviolet applications, insect control, or photosynthesis. Can farm lighting be a profitable business? You bet it can, but its value must be demonstrated, and it must be tied in as an essential ingredient in electrified farming.

About a dozen years ago, my company, in cooperation with Michigan State University, selected a farm near the college and assisted the farmer in lighting both his home and outbuildings to standards that we felt were necessary to good scientific farming. Since then, thousands of students, farm groups and other interested visitors have seen this high level of farm lighting demonstrated. I don't know how you measure the real return to us from visitors who went away and improved their own lighting. But the farm still gets visitors. It is still used by the university for instructive purposes, and we think it was a good investment.

As a more recent example, we now have our first evidence of the all-electric farm action program in our service area. The Jacobs farm is within an hour's drive of the city of Detroit. It is a dairy farm. When the family built a new house, they decided to have complete electric heating. Nor was lighting forgotten.

Among the electrical features of this farm are underground service from load center pole to house and barns, automatic yard lighting and automatic friendship lantern in front of the house, added wiring and lighting in the dairy barn, hay mow and silos, low-voltage wiring and touchplate path-of-light switching in the dairy barn, electric heat and additional circuits in the milkhouse, where formerly the bulk cooler could not be operated without turning off the lights in the dairy barn, wiring and lighting in the tool sheds and implement barns where there never had been any before.

On the farm, electric equipment includes electric heat, water heater and bulk cooler in the milk house, milking machine, gutter cleaners, electric ventilation in the dairy barn, silo unloaders and water system. In the home, besides complete electric heating, range, dishwasher and water heater, is certified wiring, path-of-light switching and approved light for living.

In the farm outbuildings and yard, the former 1600 watts of connected lighting was re-lamped to 2400 watts. Then, 45 lighting sockets were added, plus the 300-watt, dusk-to-dawn photocell. Total connected lighting load is now 11,000 watts. Aside from the increased revenue, we profit because the Jacobs' farm has been opened to visits from Vo-Ag, FFA, 4-H, Farm Bureau, grange and other visitors. It's a real demonstration of farm electrification in action, and lighting plays a big part in it. And while total electric consumption should be about 28,000 kwhr, Mr. Jacobs has been quite satisfied and pleased with his investment in better farming and living. We think the good word-of-mouth advertising will be invaluable.

We are all familiar with the trend to fewer, bigger and more productive farms which has taken place in this country during the last 20 years—a trend which has actually accelerated during the most recent years. The farms remaining today are survivors of fierce competition in agriculture. Those farmers who have been progressive—who have capitalized on change—have prospered. Those who have not were absorbed. Farming today is big business, with huge capital investment, both in land and in mechanical and electrical hired hands. But while gross farm income has grown —for example, by 15 percent between 1950 and 1959—expenses have grown by 36 percent. The result is that, while gross income per farm increased 39 percent, net income increased only 3 percent.

The challenge ahead to the farmer will be to continue to meet demands for agricultural products, and yet to do so in a manner that will insure him an adequate return on his time and money. The challenge to us will be to demonstrate how better electrical farming will help him to do this—and within the concept of farm electrification—how proper lighting can add to farm productivity, to safety and sanitation, to prestige, and to family convenience and enjoyment. It is surely not a mere coincidence that the farms with the highest income spend nearly 40 percent more for electrical household operation than does the average farm.

Message on Lighting

It is this message that we must get across to the farmer: lighting is an essential ingredient in the farm electrification he needs and wants. But the same characteristics that make a good farm manager apparently make him a hard sell when it comes to lighting. Like any other investment of his money, it must promise a good return, with practical benefits he can see and appreciate. So far, I don't think we have been successful in reaching him with the story of lighting value.

Then, to further complicate lighting promotion, we find the road blocked by inadequate wiring and related building obsolescence. Several years ago, research which preceded the national Housepower campaign showed that at least four out of five existing homes had inadequate wiring for today's electrical needs. The research done on farm wiring was more superficial, but adequate to indicate that whatever was said about wiring in urban buildings could be doubled in spades for the farm.

In the last 10 years there have been fewer than 1 million farm home starts—less than 100,000 per year. There is reason to suspect that most of these are not fully wired, let alone the typical ancient farmsteads and buildings that comprise the greater part of the market.

The three farms we surveyed as a basis for my discussion were 50 to 60 years old. On one of these, our Edison representative estimated that roughly $1200 in wiring changes would be necessary in order to make all of his lighting recommendations possible. The farm market is a vast modernization market and lighting and wiring are a big part of it.

These are two things that cannot be separated—

(Continued on page 353)

'The Investor-Owned Electric Utility Industry'

THE story of the investor-owned electric industry told in clear and easily understood terms through a series of charts and brief explanatory paragraphs now is available from the Institute.

The presentation, "The Investor-Owned Electric Utility Industry," is the culmination of research and effort over a long period to find a way to give the industry facts in the most easily assimilated form. Many utility companies had requested an effective and simple account of the vital role the industry is playing in the American economy for use with employee groups, civic clubs, and others in their communities. The program developed by EEI includes a four-color booklet, turnover charts, filmstrips and slides.

In a letter to chief executives of member companies on Sept. 29, EEI President Philip A. Fleger said that "as indicated by surveys, our particular need is to tell the *industry story*. Doing so helps improve the public attitude toward our industry and toward the individual companies as well."

He added that "people demonstrate more confidence in our ability to meet America's power needs when they realize the strength and magnitude of the industry which the companies make up."

"We have long known," Mr. Fleger stated in his letter, "that we perform our job of supplying power far better than we communicate the facts about our performance to our customers and other members of the public. There are many uses to which the information resulting from the two-and-one-half years of power supply study can and should be put."

The three dozen charts which have been developed to tell the industry story are divided into three sections. The first shows how the industry has planned and built over the years to meet America's power needs with an ample, economical supply of electricity. The second part shows America's leadership in the world—with more power capacity than the next five countries combined and three times the capacity of the Soviet Union. The final part indicates the companies' plans to meet America's power needs through 1970 and 1980.

The excellent reception of the new program is evidenced by the fact that orders for more than 80,000 copies of the four-color booklet containing the charts were received before the booklet was published. The 24-page booklet may be obtained for as little as 15 cents each when ordered in quantities of more than 5000. The booklet is considered ideal as an information source for community opinion leaders, and it is anticipated that distribution by the companies may eventually total several million copies.

Some 50 companies already have ordered more than 1100 copies of the turnover chart book. More than 160 filmstrip versions of the presentation and several sets of the glass slides have been ordered.

EEI member companies have indicated that these charts, in their various forms, provide a most valuable tool for telling the industry's story to people throughout the nation—including the industry's own employees, opinion leaders, editors, commentators, major community figures, investors, security analysts, members of civic groups, and many others.

One company has developed a very comprehensive plan for telling the story. First, the chart presentation will be shown to each member of the board of directors—on a person-to-person basis—by the company's top management. Next, the department heads will be given a person-to-person presentation by management. In turn, the department heads will go through the charts with each of their leading assistants. This will continue on down the line until every employee in the company has seen the chart presentation.

Here's how some companies have indicated they will make the presentation:

- Individual demonstration of desk-top chart series to principal opinion leaders, editors, commentators, and other major community figures by the company president, or by other top executives.
- Conference sessions, either as part of the established employee information program, or as special meetings, will cover all the company's employees. Groups of 20 to 30 will take part in each session.
- Luncheon and dinner programs for civic clubs and other community groups are planned, with speaking assignments handled by company representatives.

The presentation will be used for stockholder and financial meetings, and with various community audiences. It also will be used for meetings and conventions of area utility associations and other industries held in the company service area.

Price schedules* of the presentation are as follows:

TURNOVER CHARTS

Single copy	$5.00
2-24 copies	each $4.00
25-99 copies	each $3.50
100-499 copies	each $2.25
500 or more copies	Prices available upon request

6" x 9" BOOKLET

1-9 copies	each 40¢
10-99 copies	each 30¢
100-999 copies	each 25¢
1000-4999 copies	each 20¢
5000 or more copies	each 15¢

FILMSTRIP

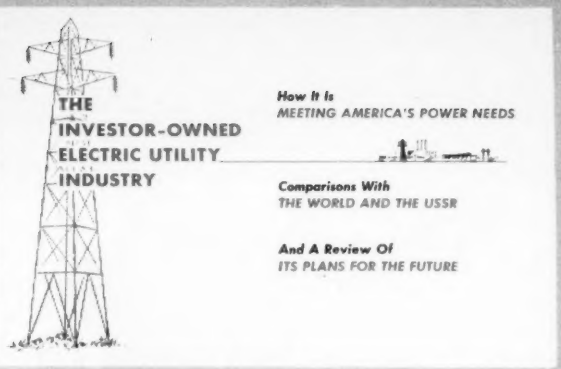
1-4 prints	each $5.00
5-9 prints	each $4.00
10 or more prints	each $3.50

GLASS LANTERN SLIDES

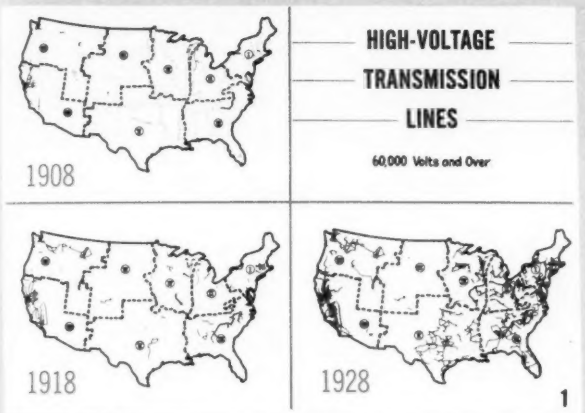
Per set of 40 glass slides 3¼" x 4"	each $175

*All prices plus shipping cost, except 1-9 copies of the booklet, which will be sent postpaid.

About four-fifths of America's electric power customers are served by investor-owned companies. The remainder are served by government-financed power suppliers. The total, including both investor-owned and government-financed, is referred to as the "total electric utility industry."

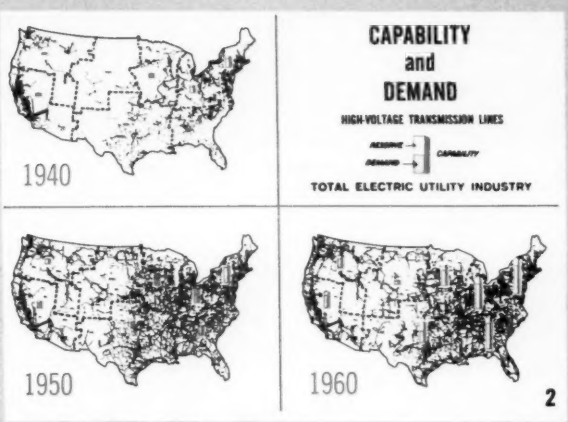


1 — Electric power capacity has been built in America to serve the needs of the people where they want to use it. First there were small power plants serving individual communities. The development of the transmission line enabled replacement of the small isolated plant by the large central power station serving many communities. Later whole areas were interconnected. Then power companies began interconnecting their transmission lines one with the other. This led to the giant power pools that now cover the country.

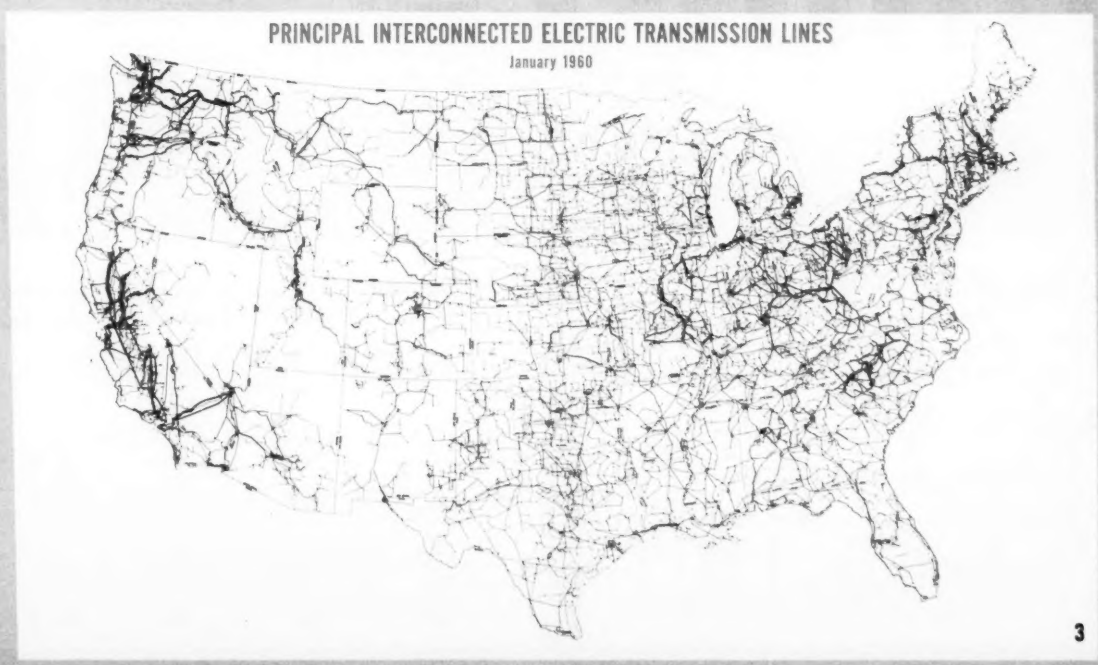


Today an abundant supply of electric energy is available for all of the needs of industry, business establishments, farm and home. The interconnected power systems cover the whole country.

2 — The bars indicate graphically the electric power capability in each Federal Power Commission region. The shaded area on each bar represents the demand in that region. The remainder indicates the reserve margin.

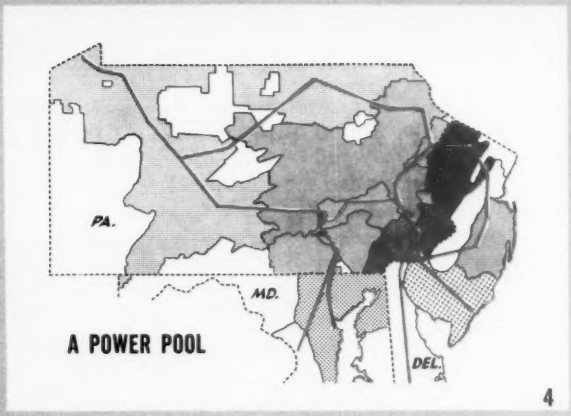


3 — This map shows in greater detail the interconnected transmission lines that serve America's power needs.



4 — In America there are over 300 companies which pool their resources one with another, each an integral part of its local community.

Here is a power pool composed of 12 companies with a combined capability of some 15,000,000 kilowatts, serving in three states an area of about 48,000 square miles, having a population of 19 million. This pooling of facilities results in good service, efficiency and low cost to the public.



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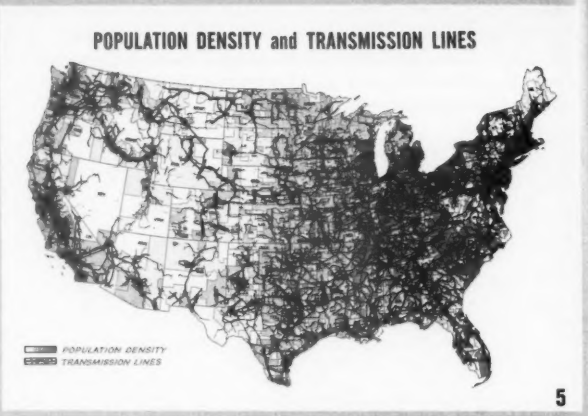
5 — The transmission lines and power capacities follow the population densities.



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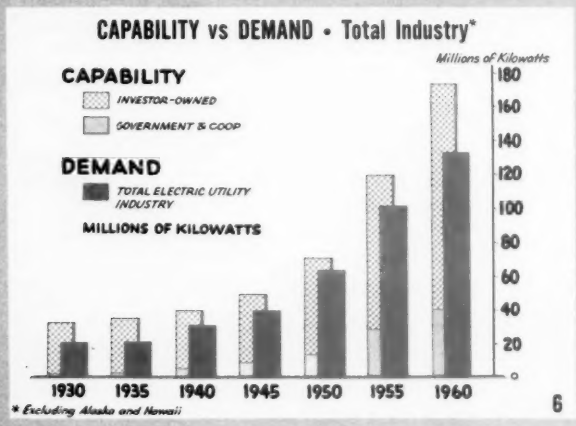
6 — The power plant and transmission capability has always remained ahead of the demand for electricity. More than three-fourths of this power plant capacity in America is furnished by some 400 investor-owned companies. The balance of the capacity is furnished by government-financed power suppliers.

7 — The long-term growth rate in the use of electricity in America has been at an average rate of 7.15 percent per year compounded. This means that the use of electric energy in America has been doubling about every 10 years. The growth during the postwar years has been at an average rate of 8.6 percent. This is about 2½ times the rate of growth of the whole economy as measured by the Gross National Product (GNP).



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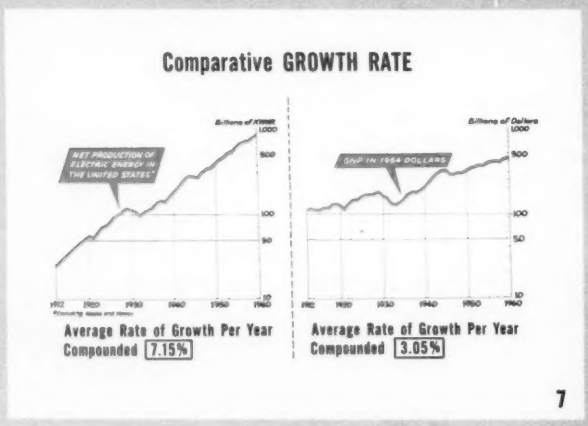
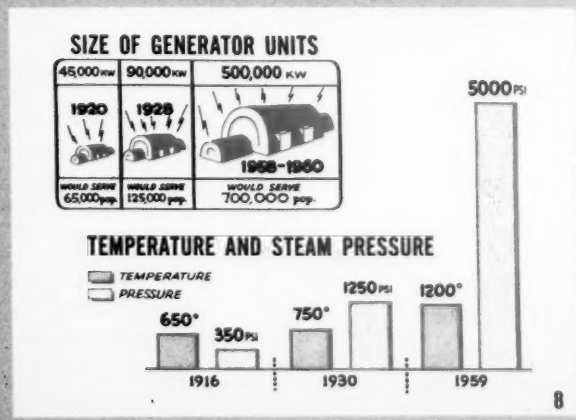

Comparative GROWTH RATE
NET PRODUCTION OF ELECTRIC ENERGY IN THE UNITED STATES
GNP IN 1954 DOLLARS
Average Rate of Growth Per Year Compounded 7.15%
Average Rate of Growth Per Year Compounded 3.05%

7

8 — In developing their power systems, the electric power companies, with the help of the manufacturers, have brought into service larger and larger generating units. They have utilized higher and higher temperatures and pressures in their generating plants, resulting in greater and greater efficiencies.

9 — The companies have utilized higher and higher transmission voltages, resulting in lower costs in transporting large blocks of electric energy over long distances.



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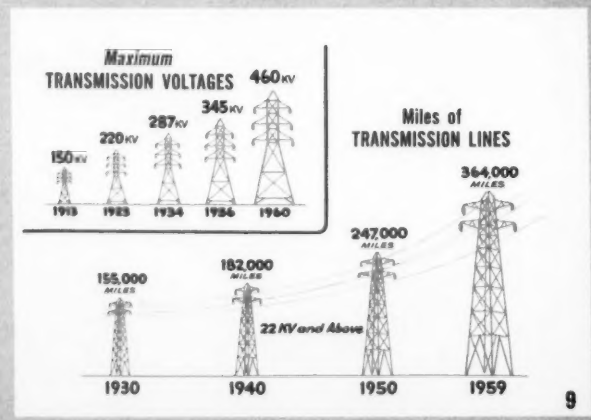
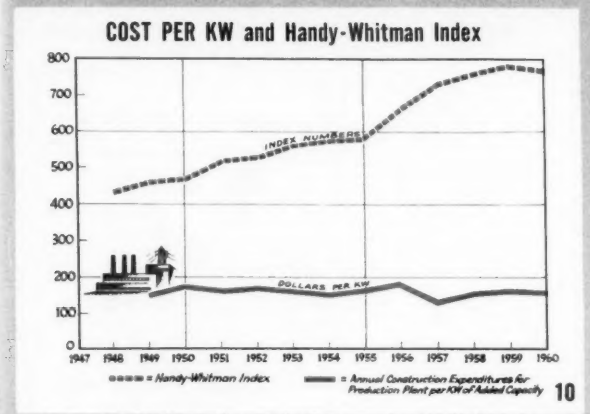


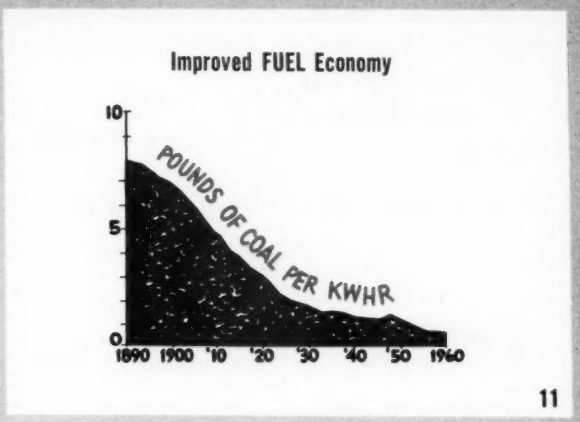
9

10 — This evolution has enabled the companies to hold down the unit investment cost per kilowatt in their power plants. The cost per kilowatt of adding power plants in 1960 was about the same as it was in 1950. During the same period, the Handy-Whitman Index of power plant construction costs has about doubled. This index reflects the cost of material, labor and supplies going into the construction of power plants. The actual investment cost per kilowatt has been held down because of the building of larger generating units, made possible by expanded interconnections and pooling, by improvement in the efficiency of the manufacturers, and advanced technology coming from research.

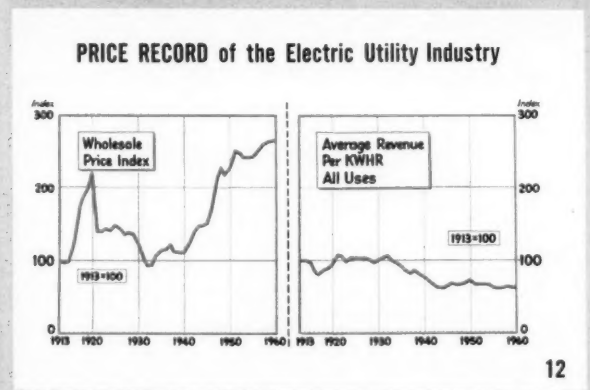


11 — This engineering progress has resulted in substantial improvement in fuel economy over the years.

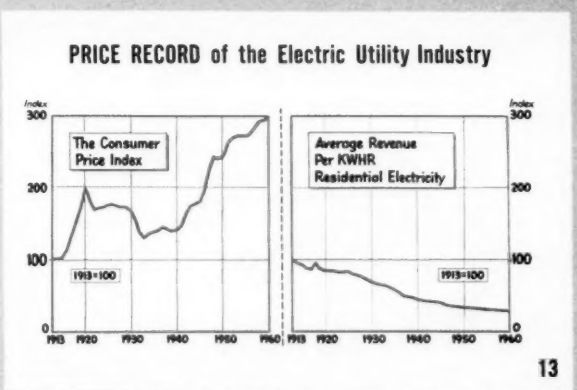
(Although coal, gas and oil are used as fuel, the chart here shows coal equivalent.)



12 — The over-all result has been a constant holding down of the average cost per kilowatt-hour of electricity to the customer.



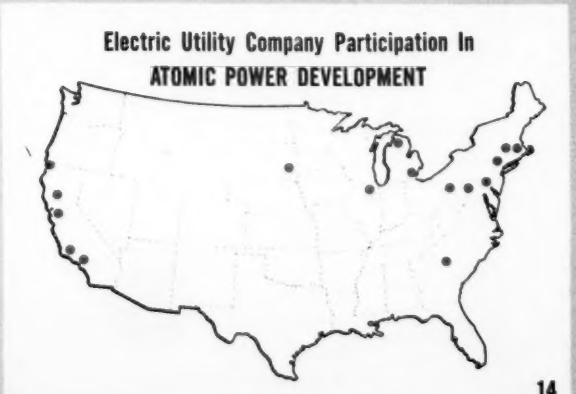
13 — There has been a steady decrease in the average cost per kilowatt-hour to the residential consumer.



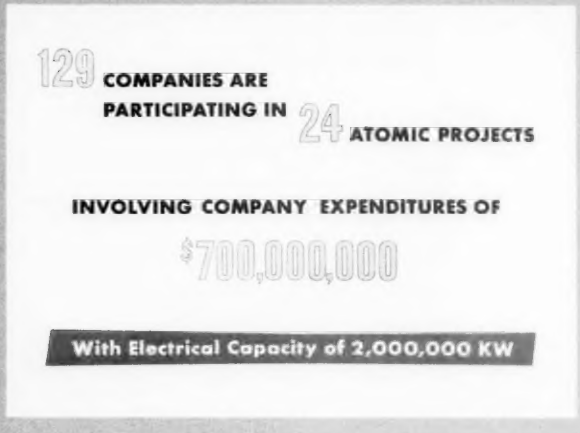
14 — The electric companies are interested in other sources of energy for the future. The map below shows the location of atomic power projects built, under construction or planned, in which investor-owned utilities are participating. In addition, there are eight atomic power research and development projects sponsored by the companies, which are not shown on the map.

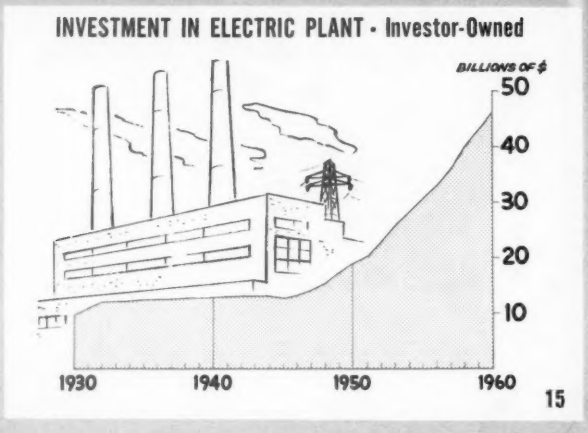
FOUR REASONS for Lower Average Price

1. **IMPROVED EFFICIENCY of CONSTRUCTION and OPERATION**
2. **INCREASED SALES**
3. **INCREASED DIVERSITY**
4. **GOOD GOVERNMENT REGULATION**



15 — To meet America's needs for electric power, the investor-owned electric companies have invested $46 billion in power facilities. These investments come from people's savings. People are encouraged to save and invest their money by the return offered for the use of it. The electric companies, in order to obtain the capital needed for expansion, must offer a rate of return comparable with that offered for other investments of similar risk.

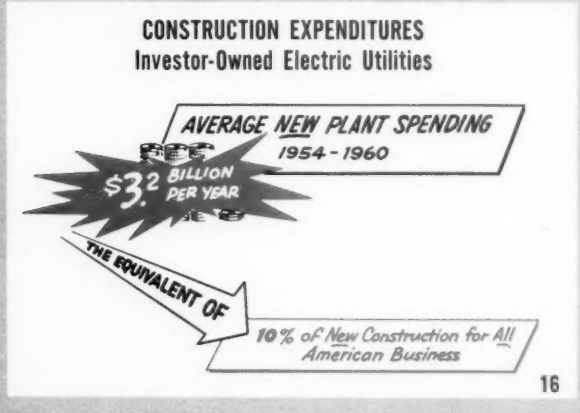


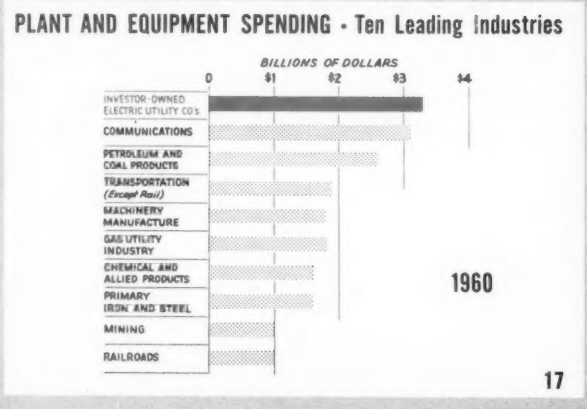


16 — Because of the importance of electric energy to the American economy and because of the large construction expenditures involved, this industry is making a substantial contribution to America's economic well-being.

The investor-owned electric utility industry has been spending for new plant and equipment about $3.2 billion per year. This spending for new plant helps in expanding America and helps create new jobs.

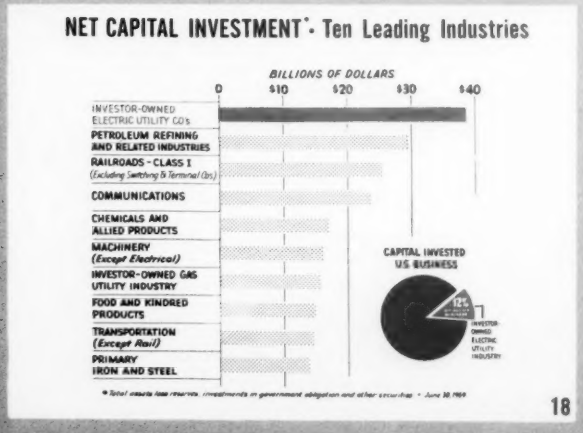
17 — This annual spending for plant and equipment is the largest of all industries in America.

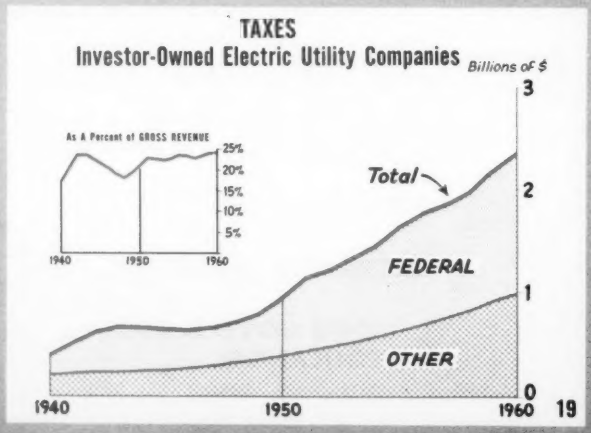




18 — The total net capital investment of the investor-owned electric utility industry is the largest of all the industries in America.

19 — The electric companies are substantial tax collectors. Currently they are paying more than $2 billion annually to government. Taxes account for about 24 cents out of every dollar the companies receive from their customers. Of course, the customer pays the tax in the electricity bill.

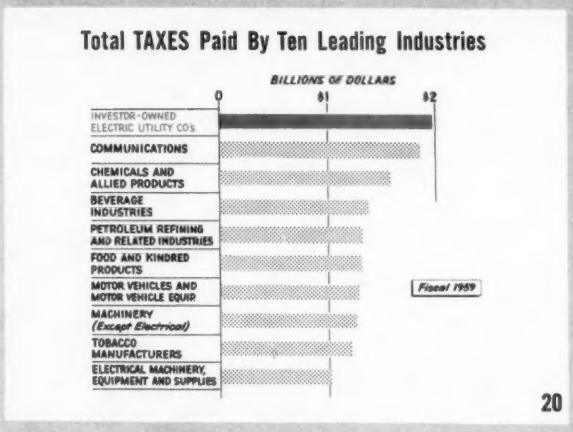


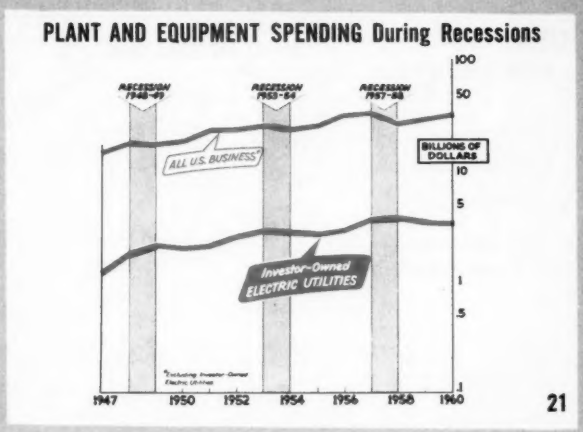


20 — The electric power companies rank first in total taxes paid in support of local, state and Federal governments.

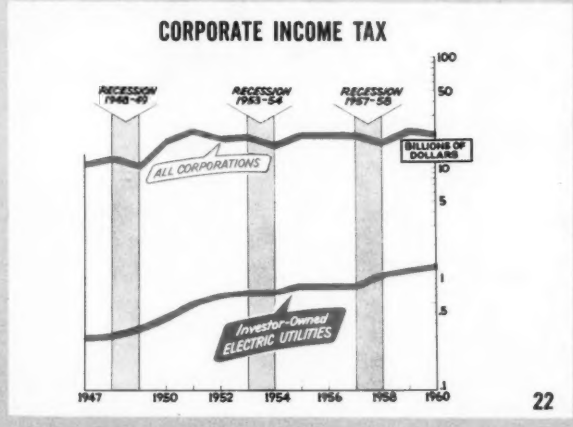
21 — The spending for new plant and equipment tends to hold up through recessions as compared to other businesses, thereby helping to soften the effects of a recession and helping to alleviate unemployment during recessions.

This stability is brought about by balanced use of service and by balanced selling.

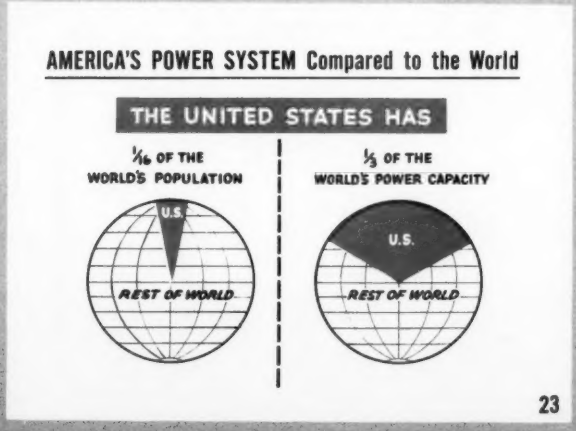




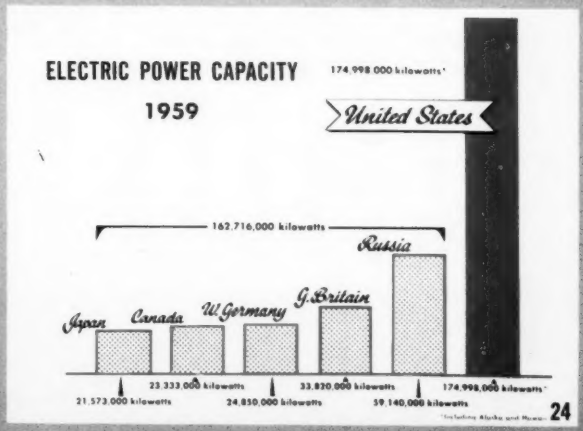
22 — Because of this stability, growth in net revenue tends to continue, resulting in a rising trend in tax payments even in recession years.



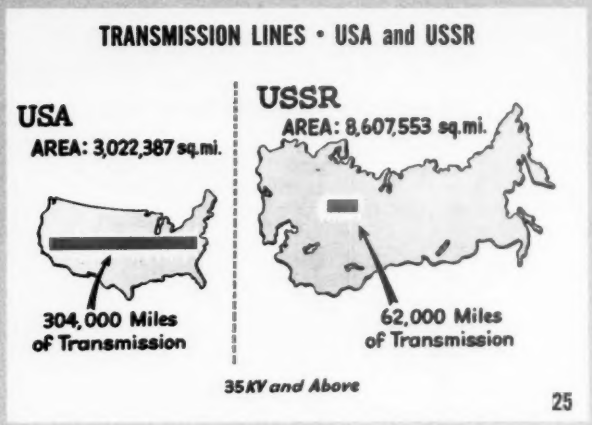
23 — America has the most advanced electric power system in the world.



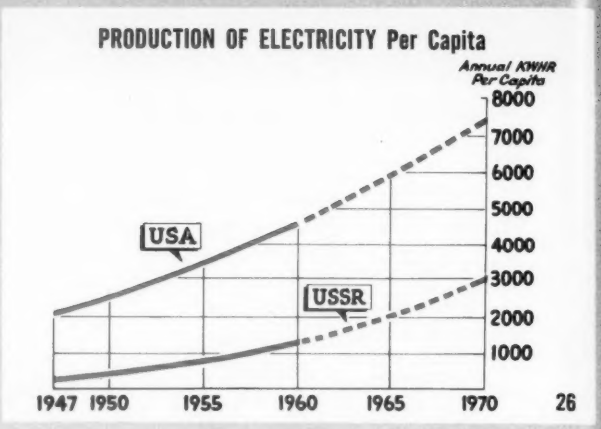
24 — America has more electric power capacity than the next five countries in the world combined — three times the power capacity of the Soviet Union.



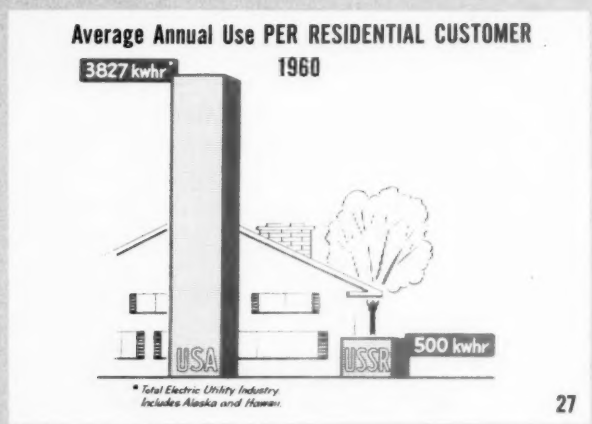
25 — Although Russia has about three times the area of the USA, the United States has about five times the miles of transmission lines of the Soviet Union.

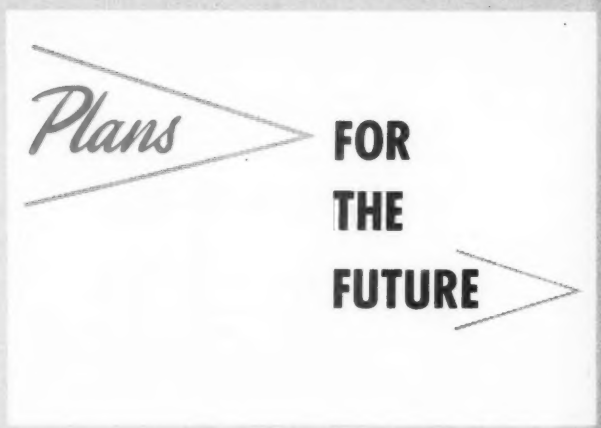


26 — The production of electricity per capita in the USA is about three times that of the USSR.
These curves will not cross in the foreseeable future.

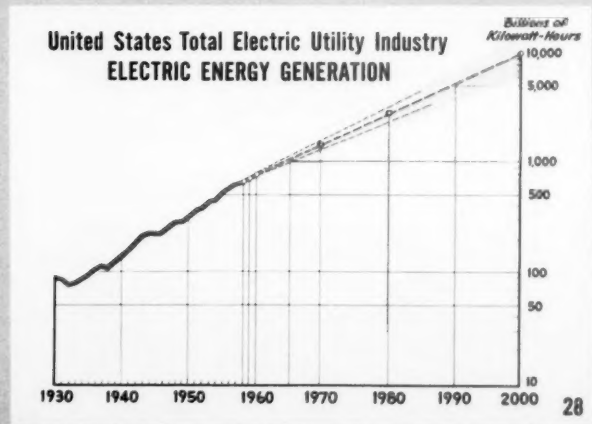


27 — In terms of residential use, the American home uses nearly eight times the electricity of the Russian home. Americans use twice as much for lighting alone as the Russian total.

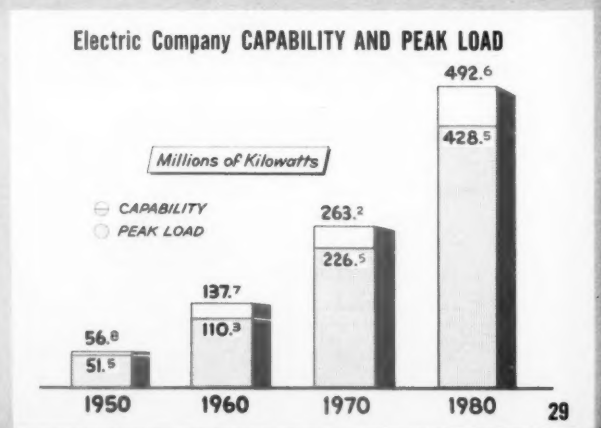




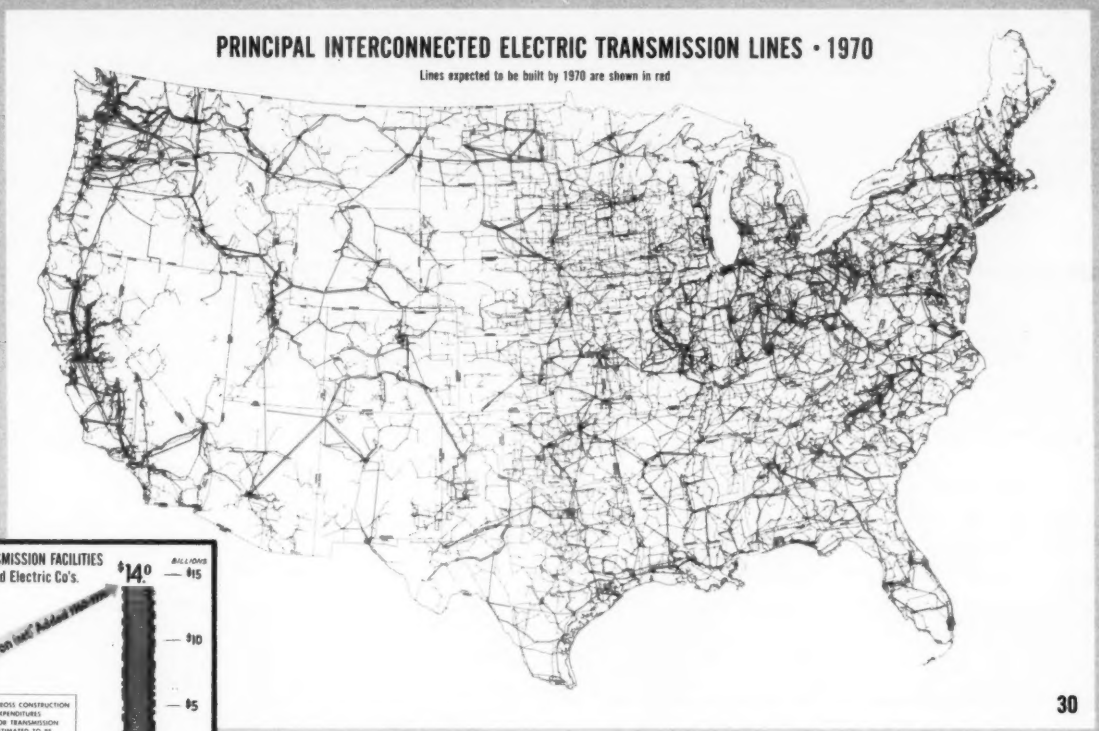
28 — Over the past two to three decades electric energy use in America has been growing at the rate of about 8 percent per year. Power capacity has been built in advance to serve it. Forecasts indicate that the long-term trend in the use of energy will be as shown here.



29 — This chart illustrates the forecast of the demand of the investor-owned segment of the total industry. This segment is about 80 percent of the total. The chart also shows the capability planned by the power companies to serve this load and the margin of reserve.



30 — This map shows the principal electric transmission lines the nation's investor-owned electric companies expect to be built by 1970. A few lines authorized or planned for construction by Federal power agencies are included. The major portion of the new transmission lines in the United States will be built under the companies' eight-billion-dollar program as shown in the chart at the lower left. Other lines are under study and will be added from time to time.



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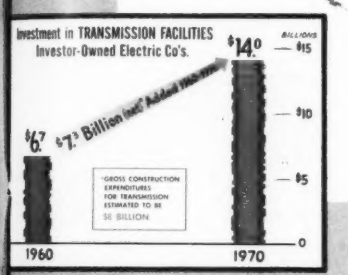
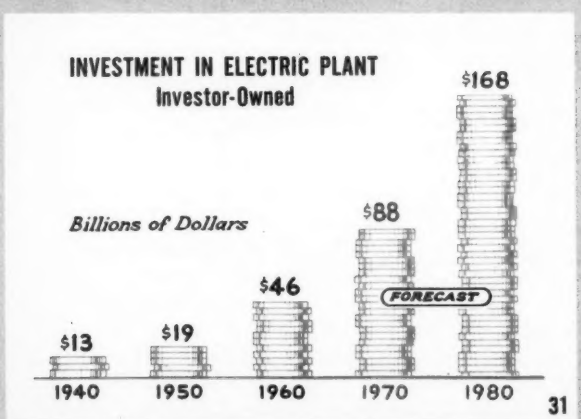
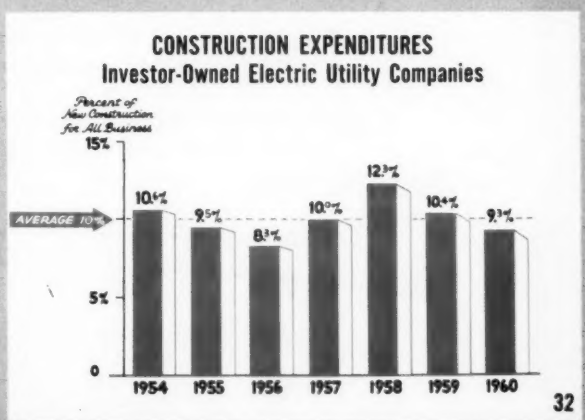


31 — The investment in utility plant of the investor-owned electric power industry now amounts to $46 billion. It is expected that the investment in 1970 will be $88 billion, or nearly double the investment of 1960. The forecast shows it will about double again by 1980.



31

32 — Over the past seven years construction expenditures of the investor-owned electric power companies have averaged 10 percent of all new construction for all American business.



32

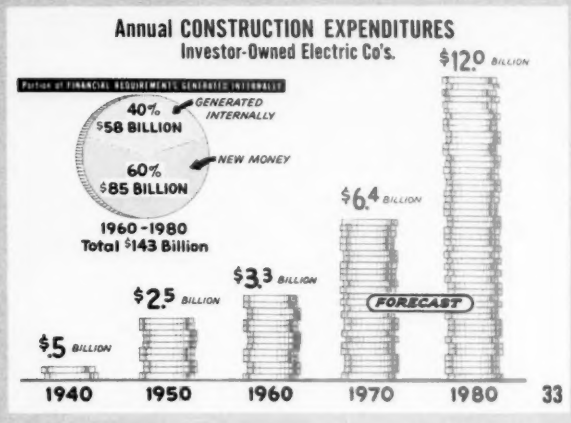
33 — The expenditures for new construction by 1980 will be at the rate of $12 billion per year.

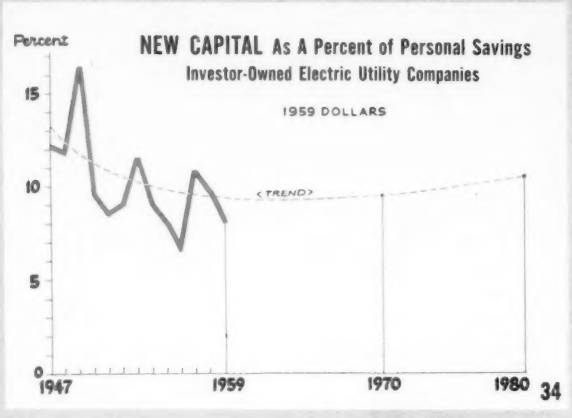
In 1980 about half of the new investment of the investor-owned utilities will be provided from funds generated within the companies. The balance will be financed through the sale of securities in the free market. That is the manner in which the capital has been provided in the past and the way it is being provided today.

34 — American investors demonstrate their faith in the investor-owned industry in that about 10 percent of all Personal Savings go into the investor-owned industry for new electric plant construction. There are about four million direct stockholders. Insurance companies, savings banks, pension funds and the like have substantial investments in power company securities. Therefore, the 127 million life insurance policyholders, and millions of other Americans, have an indirect interest in the investor-owned power industry.

With the continued expansion of America's Gross National Product and Personal Savings, it is estimated that the new construction by the investor-owned industry for the future will take about the same percentage of Personal Savings as over the past 10 years.

This industry is playing a vital role in the American economy.





Summary

- **America now has an ample, efficient power supply system with adequate reserves—three times the capacity of Russia.**
- **Eighty percent of this power is supplied by 400 investor-owned light and power companies.**
- **The companies have plans for serving America's future power needs with financing in the free market.**

10th Nationwide Survey:

The Public Appraises the Investor-Owned Electric Light and Power Industry

THE 10th nationwide survey recently completed for the investor-owned electric utility industry by Opinion Research Corp. indicates that:

- Public sentiment favors investor ownership of electric utilities over government ownership, reversing the trend of the mid-1940's, and continuing the trend established in the early 1950's.
- Many people served by investor-owned companies still don't know who owns the company. After they are informed that they are served by an investor-owned company, sentiment for such a company increases, and sentiment for government ownership decreases.
- The majority of the people believe the investor-owned electric company will be able to provide all the electricity needed 10 years from now.
- The electric utility industry ranks high with other industries in image profile comparisons.
- Most of the people, when informed, approve of the idea of pooling and interconnection, but 83 percent have heard nothing of this operation.
- Forty-two percent of those interviewed believe investor-owned electric companies have done more to make it possible for the United States to have more electricity than any other country; 25 percent believe the Federal government is responsible.
- Eighty-one percent of the people can not associate any electric light and power company with an atomic power project.
- Only 15 percent of the people know the proportion of U.S. homes that obtain electricity from investor-owned companies.

The interviews for the survey, made for Electric Companies Advertising Program by Opinion Research, were conducted in 206 different locations, representing a true cross section of the population. Probability sampling was used in the survey. This is a type of interviewing which provides no leeway for the interviewer's judgment in the selection of people to be interviewed, as in the old method of quota sampling. In probability sampling, the interviewer is directed to specific addresses and to designated persons within each household.

To the most crucial question in the survey—"Who should own and operate the local electric company?"—46 percent answered investors; 18 percent said the city or town; 11 percent said state; and 9 percent thought the Federal government should operate it (Fig. 1).

In 1943, when sentiment of government ownership was at its highest point in the past 18 years, 55 percent of the people thought the government should operate the electric facilities. At that time, only 31 percent of the people favored investor ownership. In 1950, sentiment for government ownership and investor ownership was equally divided at about 40 percent each, but since then favor for investor ownership has

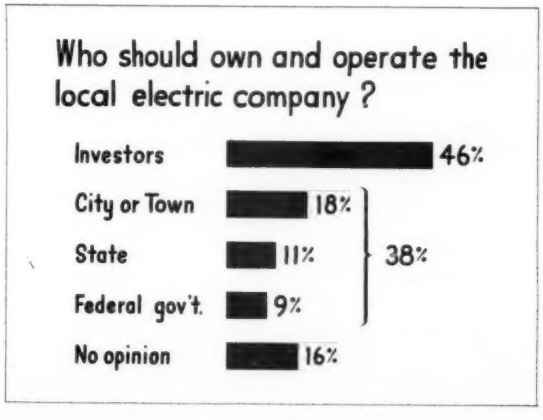


Figure 1

gained considerably, while that for Federal and municipal government ownership has decreased (Fig. 2).

In the 18 years from 1943 to 1961, sentiment for state ownership has increased slightly, while that for Federal and municipal has decreased. In 1943, of those favoring some form of government ownership, 29 percent favored municipal government; 18 percent Federal government; and 8 percent state government. Today it is municipal, 18 percent; Federal, 9 percent; and state, 11 percent (Fig. 3).

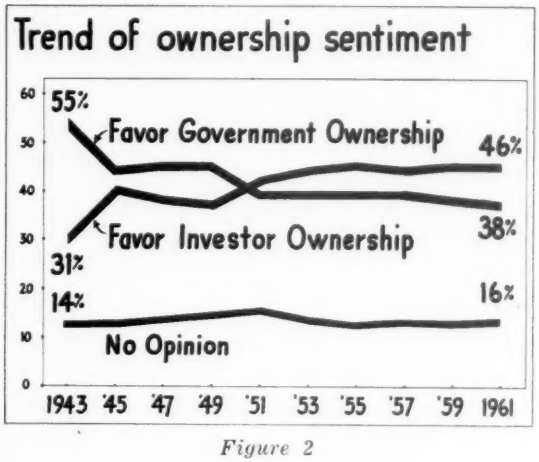


Figure 2

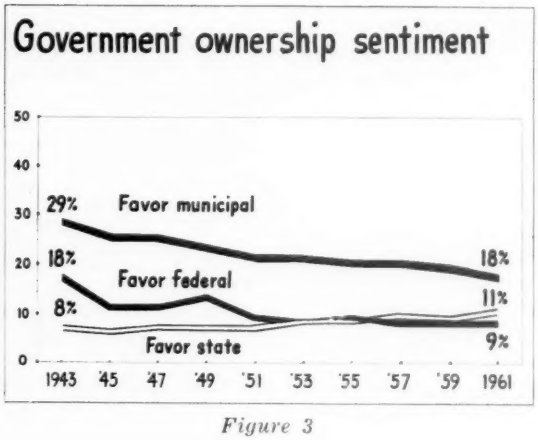


Figure 3

To find out how people would vote if the choice were between Federal ownership and investor ownership, Opinion Research took all those who had favored municipal or state ownership on an earlier question, and asked how they felt if the choice were between an investor-owned company and the Federal government. Fifty-nine percent favored investor ownership; 21 percent Federal ownership, and 20 percent had no choice (Fig. 4). These figures include all those who had originally favored investor ownership and Federal ownership. The vote was almost three to one in favor of the investor-owned companies.

J. C. Bevis, Chairman of Opinion Research Corp., said:

"We have known for a long time that part of your problem is lack of knowledge on the part of customers on the kind of company that serves them. Many customers of investor-owned companies think they are served by the government; they like what they have, and therefore vote for more government.

"It was in 1947 that we first discovered this fact and reported it to you. It was repeated in our reports on the next three surveys. We are glad to notice in the last two or three years a renewed recognition on the part of the industry of this fact. If your customers knew that they were served by an investor-owned company, that would automatically swing sentiment toward your side.

"As part of the research plan of this survey, we designed an experiment to test the effect of information. We had two samples of the population. One sample was interviewed on a white questionnaire, the other on a yellow. The questioning on the two interviews was exactly the same until we got through the question, 'Which of these groups do you think owns the electric light and power company here?'

"After this question, all the customers of investor-owned companies interviewed on the yellow question-

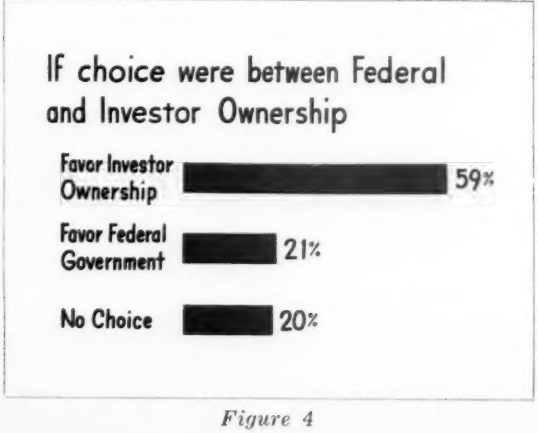


Figure 4

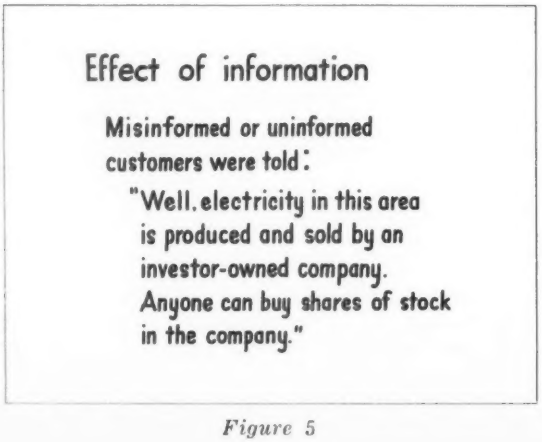

Effect of information
Misinformed or uninformed customers were told:
"Well, electricity in this area is produced and sold by an investor-owned company. Anyone can buy shares of stock in the company."

Figure 5

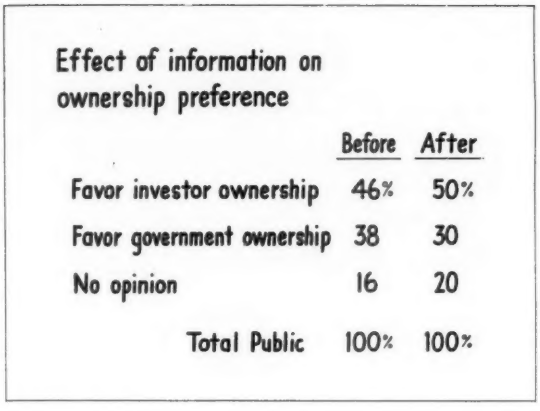


Figure 6

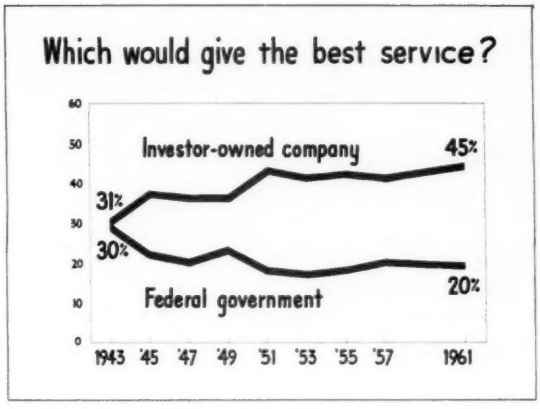


Figure 7

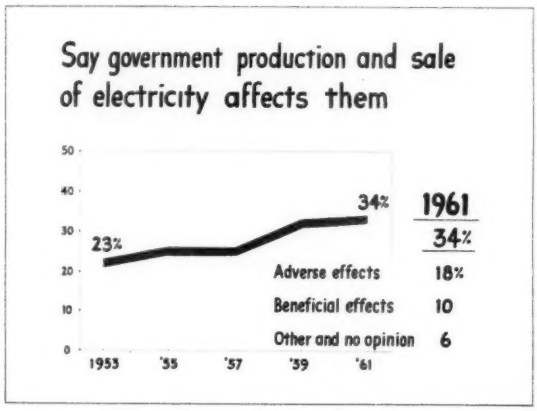


Figure 8

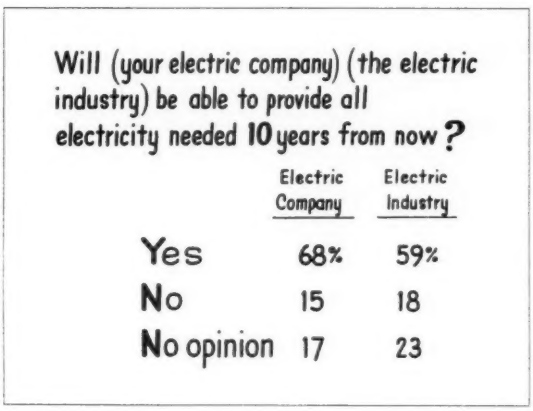


Figure 9

naire who did *not* know what kind of company served them were told the facts. (The statement the interviewer made to these people is shown in Fig. 5.) This is a very simple and a very quick statement—just one little piece of information. And we find it makes quite a difference in the ownership sentiment."

Of those questioned, without being told that they were served by an investor-owned company, 46 percent favored investor ownership; 38 percent government ownership; and 16 percent had no opinion. Of those who were told the facts, 50 percent favored investor ownership; 30 percent favored government ownership; and 20 percent had no opinion.

Explaining the value of information, Mr. Bevis said:

"Note that government ownership sentiment, after these people were given the facts, is down by eight points and favor for investor ownership is up four points (Fig. 6).

"If we can achieve this much change in support for your industry by a simple six-second statement, think what you can do in your own territory by repeating and repeating this information. If *your* customers know that they are served by an investor-owned company they are much more likely to favor investor ownership in a show-down."

Although the survey showed that people credit the Federal government with low rates, they were aware that an investor-owned company gives superior service (Fig. 7). This figures also indicates that since 1943 faith in the investor-owned company to give superior service has steadily increased.

Thirty-four percent of those interviewed believed government production and sale of electricity affected them (Fig. 8). Eighteen percent mentioned adverse effects, such as higher taxes, but 10 percent pointed out beneficial effects in government production of electricity—chiefly lower rates and lower taxes.

Faith in the future of the electric company and the electric industry to provide all electricity needed 10 years from now was expressed by a majority of those questioned. Sixty-eight percent thought the electric

IMAGE PROFILE COMPARISONS

	Electric Industry	Telephone Company	Gas Company	Railroads	Trucks	Airlines
Courteous employees	51	--	--	55	46	65
Pays lots of local taxes	36	--	--	34	26	12
Good to work for	47	55	48	43	32	49
Good careers for young people	43	48	37	24	17	63
Good investment	51	55	43	24	24	47

Figure 10

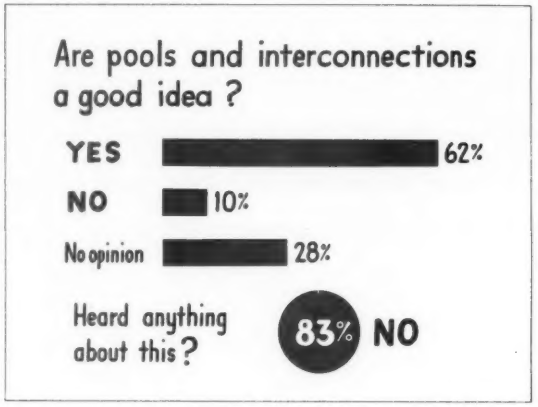


Figure 11

Why are pools and interconnections a good idea ?

Per cent who say "good"	62%
Insure dependable service	35%
More efficient and economical	10
Believe in cooperation	10
Lower rates to consumer	5
Supply more people	4

(Principal mentions)

Figure 12

What proportion of U.S. homes get their electricity from investor-owned companies ?

40 Per cent or less	12%
50 " "	9
60 " "	9
70 " "	14
▶80 " "	15
90 Per cent or more	12
Don't know	29
Total	100%

Figure 13

Know of any electric light and power companies working on atomic power projects?

19% say **YES**

81% say **NO**

Which companies?	19%
Electric light and power companies named	8%
Mention location but no company name	4
General Electric and Westinghouse	7
Mention government projects	2
Other and no opinion	2

Figure 14

Which has done more to make it possible for U.S. to have more electricity than any other country?

Investor-owned companies	42%
Federal government	25
Other and no opinion	33

Main reasons for naming federal governmet:

Has built most of the dams
Has more financial resources
Has supplied undeveloped areas

Figure 15

company could provide the electricity, and 59 percent thought the industry could meet its obligations a decade from now (Fig. 9).

In image profile comparisons (Fig. 10), the electric industry ranked well with other industries in five major categories. Fifty-one percent indicated the electric industry had courteous employees; 36 percent said it paid "lots of local taxes"; 47 percent said it was good to work for; 43 percent believed it offered good careers for young people; and 51 percent believed the industry was a good investment.

Sixty-two percent thought pools and interconnections were a good idea (Fig. 11). The question read: "Some electric light and power companies have connected their lines with other companies' lines so they can buy electricity from each other. Do you think this is a good idea or not such a good idea?" Although the general idea was approved, 83 percent of the people had heard nothing about it.

Some of the reasons why people thought pools and interconnections were a good idea (Fig. 12) are: insure dependable service, 35 percent; more efficient and economical, 10 percent; believe in cooperation, 10 percent; lower rates to consumer, 5 percent; supply more people, 4 percent.

Need for an educational program to inform the public was indicated when only 15 percent of those questioned correctly named the approximate proportion of U. S. homes (80 percent) getting their electricity from investor-owned companies (Fig. 13). The results of the questioning showed that many people were guessing. The replies covered a very wide range, with almost three out of 10 not even venturing a guess.

There is comparatively little knowledge of the investor-owned electric industry's activities in the field of atomic power. Eighty-one percent said they did not know of any electric light and power companies working on atomic power projects (Fig. 14).

Although 42 percent of the people said the investor-owned companies have done more to make it possible for the United States to have more electricity than any other country (Fig. 15), a surprisingly large number (25 percent) credited the Federal government. The main reasons for naming the Federal government were: has built most of the dams; has more financial resources; has supplied underdeveloped areas.

Mr. Bevis, in summing up the survey, referred to the trend of ownership sentiment (Fig. 2), and said: "The question you must ask yourselves continually is where will this top line, reflecting investor ownership, be in 1970? Will this line go above the present 46 percent mark? Will it go down? Or will it continue on about this level? This is a very real question, and the answer to it will determine, to a considerable degree, the future of this industry."

One of the biggest hurdles facing the investor-owned electric utility industry is the population explosion, Mr. Bevis said. "Each year the industry has to reach more people with its story. According to census estimates, you have 43 million more people in this nation today than there were in 1943. By 1970, you will have 77 million more people to reach than you did in 1943."

He said the industry must take advantage of every opportunity to tell the industry story, and in doing this, he suggested five strengths which the industry has to capitalize on. They are:

- A reputation for service.
- The industry has made this country the *world leader* in electricity production and transmission.
- There is *no great demand* on the part of the public for *additional government-financed power projects.*
- People have *faith in the industry.* They believe that it has the capability to produce the power requirements of the future.
- The *idea of interconnections and pooling* on the part of investor-owned companies *has wide appeal.* Making people aware of what the industry is doing should garner additional support for it.

1-Million-Kw Generator Ordered by Con Edison

THE world's largest turbine generator—which is expected to have a capability in excess of 1,000,000 kilowatts—has been ordered by Consolidated Edison Co. of New York, Inc. The order for the unit has been placed with Allis-Chalmers. The budgeted cost of the entire generating facility is $131 million. Completion is scheduled for early 1966.

Recent developments in technology, H. C. Forbes, Chairman of the Con Edison board, said, have made machines of this size—with the consequent substantial savings in investment costs per kilowatt of power—feasible for utility systems large enough to absorb the great blocks of power the machines represent. Large as the machine is, however, it will produce less than half the electricity needed to supply the nine-square-mile area between 59th Street and the Battery in New York City.

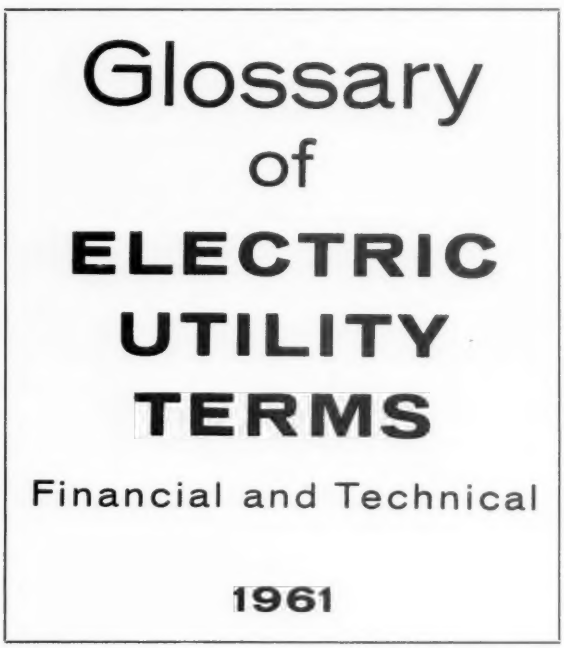
Con Edison's present capacity is over 5,000,000 kw, and this will rise to over 6.5 million kw when generating units now under construction are completed. Through existing interconnections with neighboring utilities the company is part of a 40 million-kw block of generating capacity which stretches from Montauk, N. Y., to Quebec, Canada, and from Maine to Michigan.

New 'Glossary of Electric Utility Terms' Available

A NEW "Glossary of Electric Utility Terms—Financial and Technical," and a "Nuclear Supplement" to this glossary—two separate publications—have just been published by the Institute.

The 80-page glossary of financial and technical terms, EEI Publication No. 61-31, gives definitions of terms from "accelerated amortization" to "yield."

Both publications were prepared by a project committee of the EEI Statistical Committee, under the Chairmanship of A. M. Wildberger, Baltimore Gas & Electric Co.



The "Glossary of Electric Utility Terms—Financial and Technical" provides practical definitions of principal reporting terms relating to the electric utility industry. It is a revision of the glossary issued by the Institute in 1956. The terms defined are principally those appearing in the statistical publications of the Institute. Definitions are brief. To conserve space, no index has been included, but the terms are listed alphabetically, and cross references have been made wherever they were deemed necessary and helpful.

The glossary is intended to serve as a guide for laymen and utility personnel in the preparation and general interpretation of the industry's statistics.

The 13-page "Nuclear Supplement" to the glossary, EEI Publication No. 61-49, covers definitions from "absorber" to "uranium". It was prepared for general use in understanding non-technical articles dealing with the nuclear program and terms emanating from EEI, as well as the nuclear accounts in the Federal Power Commission's Uniform System of Accounts, effective Jan. 1, 1961.

Primarily for use by the layman, the definitions are not intended to embrace the full technical meanings needed by the student or technician seeking complete understanding of a term.

Prices are: "Glossary of Electric Utility Terms," 1 to 9 copies, 50 cents each, postpaid in USA; 10-49 copies, 40 cents each, plus postage; "Nuclear Supplement," 1 to 9 copies, 25 cents each, postpaid in USA; 10-49 copies, 15 cents each, plus postage. Quantity prices for both publications are available on request to Edison Electric Institute, 750 Third Ave., New York 17, N. Y.

Work Starts on N. Y. Utilities' Superheat Reactor

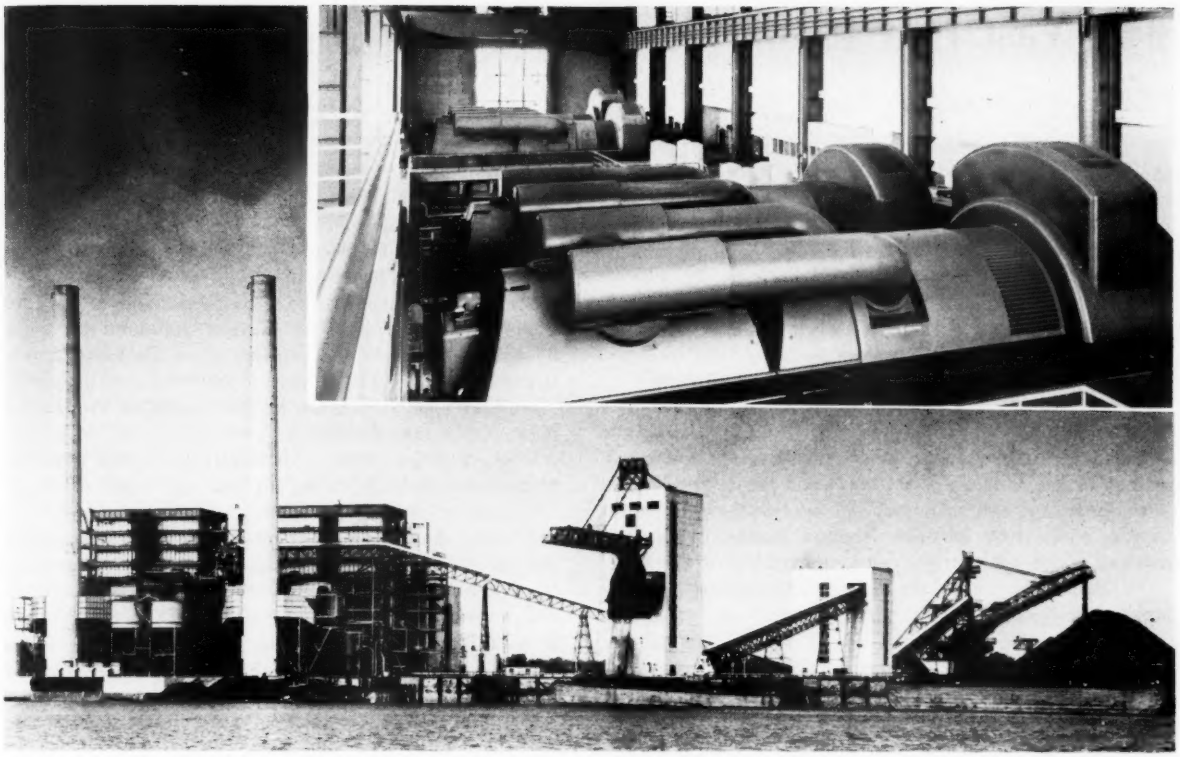
CONSTRUCTION on an $8 million experimental nuclear superheat reactor, part of a research program sponsored by New York State electric utility companies, has started.

The announcement, made by E. R. Acker, President of Empire State Atomic Development Associates, Inc. (ESADA), came just one week after permission to build the reactor was granted by the Atomic Energy Commission.

The nuclear superheat reactor, the world's first separate reactor of its type, is being built at General Electric's Vallecitos Atomic Laboratory near Pleasonton, Calif. It will be a fuel test facility to demonstrate the technical feasibility and improved economics of nuclear superheat. The new reactor will have a capacity of 12,500 kilowatts of heat, and is scheduled to go into operation late in 1962.

ESADA, a non-profit corporation formed by seven major electric utilities operating in New York State, has contracted with General Electric to design, construct and operate the reactor, and is putting up $5,750,000 toward the cost of the superheat program.

The ESADA companies, which serve 98 per cent of New York State power customers, include Central Hudson Gas and Electric Corp.—of which Mr. Acker is Board Chairman—New York State Electric and Gas Corp.; Long Island Lighting Co.; Consolidated Edison Co. of New York, Inc.; Rochester Gas and Electric Corp.; Orange and Rockland Utilities, Inc.; and Niagara Mohawk Power Corp.



Public Service Gas and Electric Co.'s Mercer station, south of Trenton, which was dedicated last month, has a total generating capacity of 640,000 kilowatts, and is the largest in the company's system. The station was erected at a cost of $110 million. Mercer station can supply the normal electrical needs for about 900,000 homes. The station's 320,000-kw, cross-compound turbines are shown (inset) in the turbine room. Each generator and its associated boiler feed pump are located outside on the generator deck.

5000 NEW Planning Guides Mailed

PLANNING guides and sample materials for the 1962 observance of National Electrical Week were mailed in mid-October to some 5000 industry leaders and groups throughout the United States and Canada, H. A. Webster, Chairman of the National Electrical Week Committee, has announced.

National Electrical Week will be observed for the seventh consecutive year, Feb. 11-17. The theme for the observance will be "Electricity Powers Progress."

The planning guide contains complete information on how individual groups and communities can participate in National Electrical Week, the all-electrical industry event staged each February during the week of Edison's birthday to spotlight the industry and its contributions to our economy and way of life.

In addition to copy and suggested group and community programs, the NEW planning guide for 1962 contains illustrations and samples of a number of NEW observance materials that will be available for purchase from the committee.

A number of standard items will again be offered—speeches, mats, repro proofs, Edison replica lamps, electrical home inspection reports, pamphlets on "How to Make a Simple Electric Motor," and general display materials, such as window streamers, bumper strips, and easeled cards. In addition, the committee will offer: decals featuring the theme words "Electricity Powers Progress" for use on automobiles and in store and office windows during and after the observance, placemats featuring a brief electrical quiz and information about the week, and two interesting new pamphlets designed for students—"How to Make a Simple Buzzer and Code Key," and "How to Make a Simple Electric Battery."

The committee offices are at 290 Madison Ave., New York 17, N. Y. However, those wishing further information about National Electrical Week should contact the St. Louis headquarters, National Electrical Week Committee, Suite 306, 407 N. 8th Street.

Vast Potential Farm Market Seen by Industry

(Continued from page 332)

farms to power suppliers because such farms tend to even out peak demands. These farms will probably have controls operating small electrical equipment automatically, over long periods of time. Before all-electrified farms become a reality, the farmers need help.

"The power supplier is the logical one to know controls and to help the farmer design systems. At the same time it is within his realm to train local technicians to help farmers maintain these systems."

How to Aid the Farmers

Mr. Olver offered the following summary and recommendations:

- Encouragement should be given the farmer to do a "big" job with small equipment, controlled automatically and operating over long periods of time.
- The farmer needs help, mainly automation "know-how" for designing and maintaining feed handling systems. The farmer cannot afford to put thousands of dollars into feeding systems with inadequate design information and with no hope for adequate maintenance.
- An important objective is to encourage quality feed handling systems. The only way to do this is to have trained personnel strategically placed to help the farmer.
- Local technicians who can design and maintain controls for feeding systems must be trained. Universities and industries can cooperate to provide the main schooling. Power suppliers, distributors, and others might provide the men to train local technicians.
- Educational programs which can be accomplished with a minimum of effort should at least be inaugurated, such as youth programs, work with typical farms as an example to the other farmers, and others.
- Farmers should be given incentives to go "all-electric." Any specific load, such as a grain drier, would not be considered a detriment since the investment made by the farmer and power supplier only encourages greater electrical use—for example, house heating.

R. F. McNitt, Vice President, Electric Way Corp., said that power suppliers, in trying to promote electrical heating, have not helped the program with some of their actions.

These are some of the complaints Mr. McNitt said he has encountered:

- Some of the power suppliers have installed heating equipment and have left out the electrical contractor entirely.
- Some have sold the equipment at cost to the customer and have let the home owner find an electrical contractor. This can result in improper installations and no one being responsible for the maintenance of equipment.
- There have been many cases where the amount of electrical heating equipment installed has not been properly engineered by the power supplier and has caused dissatisfaction.

Mr. McNitt made these recommendations:

- Have a good job of engineering done for your heating prospects, whether you have the service contracted or have an engineer of your own.
- Have a good local contractor available to see that it is properly installed and serviced.
- Have a good insulator available to see that the home is properly insulated for electrical heating.

"I hope that you as a power supplier realize that a successful heating program depends on these three things, but most important is your electrical contractor," he said. "It is important that he has your support, and that he makes a legitimate profit for his work. It is impossible for the contractor to keep his business in operation without profit. Just to meet the many expenses that go with any business, he must have the normal mark-up. We must get over the idea that an electrical contractor makes a killing on one heating job. He must have a large volume of heating business to be the active salesman that you need to support your heating program."

E. O. George, Vice President, The Detroit Edison Co., discussed the opportunities for expanding the farm lighting market. The text of this discussion appears in this issue, starting on page 333.

STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, JULY 2, 1946, AND JUNE 11, 1960 (74 STAT. 208), SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF:

EDISON ELECTRIC INSTITUTE BULLETIN, published monthly, except July and August, bi-monthly then, at Englewood, New Jersey, for October, 1961.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, EDISON ELECTRIC INSTITUTE, 750 Third Avenue, New York 17, N. Y.; Editor, Prall Culviner, 750 Third Avenue, New York 17, N. Y.; Managing editor, none; Business Manager, none.

2. The owner is: EDISON ELECTRIC INSTITUTE—not incorporated—trade association, 750 Third Avenue, New York 17, N. Y.; P. A. Fleger, President, 750 Third Avenue, New York 17, N. Y.; H. S. Sutton, Treasurer, Consolidated Edison Co. of N. Y., Inc., 4 Irving Place, New York, N. Y.; A. B. Morgan, Secretary, 750 Third Avenue, New York 17, N. Y.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: none.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders, who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required by the act of June 11, 1960, to be included in all statements regardless of frequency of issue.) 2500.

PRALL CULVINER, Editor

Sworn to and subscribed before me this 2nd day of October, 1961.

Erving Schneider

No. 24-3515100

Notary Public, State of New York. Qualified in Kings County. Certificate filed in New York County. (Commission expires March 30, 1963.)

Lighting — the Golden Opportunity

(Continued from page 335)

lighting and wiring. I know that most of us are doing a constant job of educating farmers as to wiring adequacy through farm youth groups, other farm organizations and colleges. But we must do more to create a demand for the electrification that wiring is holding back, enough so that the farmer will voluntarily break the wiring bottleneck.

Because of the general apathy that seems to exist toward the rich and virtually untapped farm lighting market, I would like to suggest that an Inter-Industry Council marketing program be developed which can lend direction, coordination, and leadership to all elements within our industry and to interested allies. The basic objective and function of such a program would be as follows:

- Guide and coordinate research efforts on farm lighting load characteristics, farmer attitudes and motivations and product innovation.
- Establish central promotional and advertising themes, which could be adapted to local utility and allied use according to individual conditions.
- Integrate lighting as a more prominent and productive ingredient in other farm electrification programs (such as Farm Better Electrically).
- Improve communication between the electric industry and the farm customer through such media as schools, colleges, farm youth organizations, other farmer groups, farm publications.
- Finally, without sacrifice of service, to put more *sell* into farm lighting sales.

This may sound like an ambitious program, but some centralized guidance is badly needed to bring together the spotty efforts we have all made from time to time to break through this farm lighting market. It's necessary; it can be done; and I believe the Inter-Industry Council is the ideal place to launch such a program which can benefit the whole industry. To do so, however, it must be armed with facts about both the farmer and his lighting use.

For example, in a survey made by the Institute of Public Opinion for *Look* magazine on "How America Feels as We Enter the Sixties," it was indicated that marketing to the farmer should be developed with recognition of his individual attitudes. It was shown that the farmer:

- Tends to be less optimistic about the future than other occupational groups. He thinks a depression more likely, feels income will not rise.
- Considers his family and his work the most interesting part of his life.
- Is less likely to believe that more income will bring happiness.
- Is not likely to buy or build a new home, but most likely to make additions or repairs.
- Of all occupational groups, places high value on electricity. All groups said electricity was the best bargain—and over 50 percent of farmers place it first.

Another kind of research is closer to home. Many of us are familiar with the study of residential lighting load characteristics conducted by the Load Research Committee of the Association of Edison Illuminating Companies, the Middle West Service Co., and sponsored by General Electric Co. One hundred and twenty-four homes were metered by isolating lighting from all other uses.

The findings, which are still in the process of analysis, revealed that average annual use per customer for lighting was 854 kwhr, about 22 percent of average total home use. It varied from as low as 359 kwhr to 1595 kwhr from the lowest to highest use group. The report also indicated that as the connected lamp load increased, so did energy use, the number of lamps and watts per lamp.

Some of the homes in the test were since "light conditioned" and metering has shown increases as high as 69 percent in connected load and 25 percent in kilowatt-hour use as the result of relighting. In order to demonstrate to allies the potential dollar value in home relighting, inventories of lighting equipment and cost records are being kept. So far it looks like about $336 in material and $168 in labor to relight the average home.

I believe this kind of testing should also be considered on a nationwide or regional basis also to give the electric industry data on the effects of selling better lighting to farms, how better lighting affects other farm electrical uses, and the utility profit in promoting light for farm living and production.

Ultimately, it seems to me that our objective must be to demonstrate to the farmer both the tangible and intangible benefits of good lighting. The tangible or practical aspects of it will be either the actual or rationalized reasons for purchase, but the aesthetic factors, the prestige value, may be more interest-arousing. It used to be that a good farm was recognized by the looks of the outbuildings, whether or not the farm home was unpainted or dilapidated. This no longer is true, as the farmer has begun to fix up and paint up in keeping with his position as a successful businessman. In the future, I would like to see the finest farm also identified by its good lighting.

I sincerely believe that in farm lighting we do have a golden opportunity, but it is one that can only be realized in its full potential if our industry assumes the leadership to cultivate the market. The fixture and lamp manufacturers, their dealers and distributors, will step forth to add impetus to this effort, but only if we go out and prove that we are interested and willing to assume the necessary leadership.

We say that the farmer's best buy is electricity—and he agrees with us—now let's get busy and make lighting the best buy in electricity.

People in Power

W. H. MCELWAIN, Executive Vice President of Jersey Central Power & Light Co. and New Jersey Power & Light Co., has been elected President of both companies. He succeeds C. E. KOHLHEPP who retires Oct. 30.

A veteran of 35 years' utility experience, Mr. McElwain joined the New York State Electric and Gas Corp. at Oneonta, N. Y., shortly after receiving his degree in mechanical engineering from Rensselaer Polytechnic Institute in 1926. In 1949 he resigned to become superintendent of operations with Metropolitan Edison Co.

In 1950 he was elected vice president in charge of operations of that company's western division with headquarters in York, Pa. The following year he was elected vice president in charge of operations for the entire company.

Mr. McElwain in 1956 joined JCP&L-NJP&L as a director and vice president of engineering and operations for both companies. He was elected executive vice president of both companies in May, 1958.

He is a director of Utilities Mutual Insurance Co.; executive vice president of the New Jersey Business Development Corp., and a director of the New Jersey Utilities Association.

Mr. Kohlhepp and Mr. McElwain recently were elected directors of the Saxton Nuclear Experimental Corp., a General Public Utilities nuclear project being constructed at Saxton, Pa.

For Mr. Kohlhepp, his retirement will mark the end of more than 40 years in the electric utility business. A former director of EEI, Mr. Kohlhepp was educated at the Baltimore Polytechnic Institute, the Baltimore School of Commerce and Finance, and at Johns Hopkins University. He also was chairman of the EEI Regulation Committee.

J. J. MORRISON, Executive Vice President of Gulf States Utilities Co., has been elected President of the company.

A native of Nova Scotia, Mr. Morrison received his electrical engineering degree from Nova Scotia Technical College. He began his electric utility career in Halifax and gained experience with Stone & Webster in Boston; Key West, Fla.; Savannah, Ga.; and with Engineers Public Service Co. in New York City, where he advanced from assistant to the executive vice president, to utility analyst, to assistant to the president.

In 1947, when Gulf States became an independent operating utility, Mr. Morrison joined the organization as assistant to the president. He was elected a vice president in 1954 and executive vice president in 1955. He has been a director of the company since 1957.

In its first major organizational change since 1936, Central Vermont Public Service Corp. has named a new president and elected for the first time in its history a chairman of the board and chief executive officer.

Executive Vice President H. L. DURGIN was named President to succeed A. A. CREE, who was elected to the new position of Chairman of the Board, and chief executive officer.

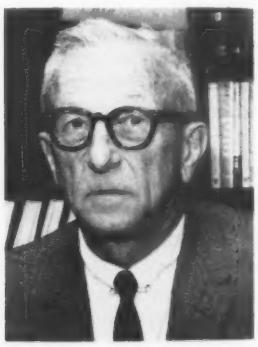
Two new vice presidents also were named. W. M. EDSON, Chief Engineer and Manager of Operations, was elected Vice President—Operations and Construction, and R. E. SCHILL, Assistant to the President, was elected Vice President—Marketing.

H. S. LEWIS, Chief Distribution Engineer, was promoted to Chief Engineer, and placed in charge of the newly formed division of engineering and planning.

Mr. Durgin joined the company in 1929, served as electrical engineer, chief engineer, vice president and chief engineer. He was promoted to executive vice president in 1950 and elected a director in 1951. He is a graduate of the University of Maine with a degree in electrical engineering. He is a Fellow of the American Institute of Electrical Engineers.

Mr. Cree joined the company in 1935 as vice president and general manager, and was elected president in 1936. From 1919 until 1934, Mr. Cree was associated with the New York house of the investment banking firm of Lee Higginson & Co. and its successor, Lee Higginson Corp. He left this firm to join the former

W. H. MCELWAIN



J. J. MORRISON

H. L. DURGIN

A. A. CREE

New England Public Service Co. with headquarters at Augusta, Maine, until his transfer in 1935 to the management of CVPS, and the former Twin State Gas & Electric Co., which was later absorbed into CVPS. He is serving his 26th year as the company's chief executive.

Mr. Edson joined the company in 1937. He was superintendent of operations for CVPS until January of this year, when he was named chief engineer and manager of operations.

Mr. Schill has been assistant to the president since joining the company in 1956. He was formerly assistant secretary of the Brooklyn Union Gas Co. He was graduated from Dartmouth College with a BA, and received a master of commercial science degree from the Amos Tuck School of Business Administration at Dartmouth in 1940.

Mr. Lewis joined the company in 1935 after graduation from Rensselaer Polytechnic Institute with the degree of master of electrical engineering.

R. F. GILKESON, Manager of the Engineering and Research Department of Philadelphia Electric Co., has been elected Vice President in Charge of Engineering and Research of the company.

Mr. Gilkeson has been associated with Philadelphia Electric since 1939 when he joined the utility as a junior engineer. After he returned from World War II he was assigned to positions in the electric generation department. In 1951 he was granted leave of absence to join the atomic power division of the Westinghouse Electric Corp. On his return in 1953 he was named assistant superintendent of generating stations, and in 1956 superintendent of the company's Eddystone electric generating station. In 1960 he was named manager of the engineering and research department, the position he held at the time of his election as vice president.

Mr. Gilkeson graduated from Cornell University as an electrical engineer, and is a member of numerous professional and industry associations, including the American Institute of Electrical Engineers, Pennsylvania Electric Association, and the Electrical Association of Philadelphia.

G. H. UNDERHILL has been appointed Vice President—Engineering of Central Hudson Gas & Electric Corp. Deputy Chief Engineer since 1949, he will succeed G. H. Landis, who retired Oct. 1 after 39 years of company service.

Mr. Underhill joined Central Hudson in 1920 as a junior electrical engineer, following graduation from Pratt Institute. He became superintendent of electric distribution in 1932, and was named assistant to the chief engineer two years later. While serving as deputy chief engineer, he also acted as manager of the engineering department's planning division from 1955 until early 1961.

Among Mr. Underhill's major assignments and achievements have been the direction of experimentation with advanced types of electric distribution systems in the early 1930's, leading to improved reliability of service to customers in rural areas.

P. G. WHITMORE has been elected Vice President of Middle South Utilities, Inc. Mr. Whitmore has been Secretary of the Middle South System Operating Committee since 1945.

He served with West Penn Power Co. and Ebasco Services Inc. prior to joining Middle South. Assigned to Middle South subsidiaries in 1942, he was responsible for coordinating all system planning, construction, design, operating and similar work between these companies and Ebasco.

J. L. SHOEMAKER, Director of Market Research, Florida Power Corp., has been named Director of Public Relations for the company. This department, formerly directed by the late J. K. "PAT" FLANAGAN, has responsibility for the cultivation, maintenance, and improvement of the company's relations with its many "publics," which include customers, employees, suppliers, dealers and stockholders. The public relations department has over-all direction of the company's advertising, news and publicity programs. It also disseminates information about the many local and national business and professional activities of the company and its employees, and the company's place in the investor-owned electric utility industry.

Mr. Shoemaker joined Florida Power in 1955. His experience includes more than 20 years in the fields of economic and market research, and sales promotion with two of America's largest corporations.

S. E. RATCLIFFE, Treasurer, and G. F. DUBORG, Blue Ridge District Manager, Virginia Electric and Power Co., have been elected Vice Presidents of the company.

Mr. Ratcliffe joined the utility industry in 1917. He was assistant treasurer of Engineers Public Service Co. and its subsidiaries, including VE&P in 1947 at the time EPS was dissolved. He then became assistant treasurer of VE&P, and was made treasurer in 1953.

Mr. Duborg began his utility career with Stone & Webster, Inc. He joined EPS in 1935, and was named Norfolk manager in 1952.

C. T. SHOCH has retired as Director of Information Services of Pennsylvania Power & Light Co., after more than 37 years of service with the company.

Mr. Shoch began his PP&L career in 1924 as a repairman at the company's Harwood power plant. He became a field engineer in 1926 and subsequently test engineer, plant betterment engineer and boiler room engineer.

In 1935, he became an industrial sales representative in the commercial department. As a specialist in industrial power applications, he held positions of increasing scope and responsibility, including industrial engineer, system sales representative, industrial and commercial sales manager and assistant to the vice president, commercial. During this period, he was active on industrial committees of EEI and the Pennsylvania Electric Association. As an EEI member, he was a founder

of the Industrial Electrification Council.

In 1954, Mr. Shoch was named coordinator of the company's customer relations activities, a position in which he headed the development of extensive training programs for more than 3,000 employees with customer contact responsibilities. In line with this work, he was also a member and active leader in EEI's Customer Relations Committee.

NEILL RICHARDS, Secretary-Treasurer and a director of Kansas Gas and Electric Co., has been elected a Vice President of the company.

Mr. Richards began his utility career with Interstate Power Co. in 1919, and later was its treasurer. He also has served as assistant treasurer of Utilities Power & Light Co. In World War II he left the electric utility field briefly to become an administrator and business consultant in the Office of the Alien Property Custodian.

S. L. DRUMM, President of West Penn Power Co., has been selected as Western Pennsylvania's outstanding industrialist for the year 1961 by the Western Pennsylvania Chapter of the Society of Industrial Realtors.

The award is given annually to an industrialist who is considered to have made significant contributions to the industrial development of Western Pennsylvania in the public interest.

Mr. Drumm's entire business life has been in the utility field. The president and a director of West Penn Power since 1958, Mr. Drumm joined West Penn in 1954 as executive vice president.

BENJAMIN BENNETT, Secretary of West Penn Power Co., has also been elected Treasurer of the company.

Mr. Bennett's service with West Penn spans 37 years, starting in 1924 with clerical duties in the general office. In 1944 he was made special assistant to the controller, and a year later became assistant chief clerk.

He was named assistant to the secretary in 1946, and assistant secretary in 1949. He later spent a year as system methods accountant, resuming the position of assistant secretary in 1952. A year later he was elected secretary.

LBE Women's Conference to Be Held Jan. 11-13 in Chicago

WITH the theme, "Finger on the Future," the Sixth Annual Live Better Electrically Women's Conference will be held Jan. 11-13, 1962, at the Edgewater Beach Hotel in Chicago.

The conference will be sponsored by the EEI Home Service Committee, which is under the Chairmanship of Mrs. Marguerite Fenner, Director of Home Economics, Pacific Gas and Electric Co. The entire first day's meeting will be keyed to the future—a year from now, five to 10 years ahead, and even the turn of the century. Nationally known speakers representing the electrical industry, the fields of advertising, education and foods, and magazine editors will be in charge of these discussions.

Two workshops, one on home laundry equipment, the other on residential lighting, will be conducted on the morning of the second day. Field tested sales ideas and demonstrations will be presented. In the afternoon, additional demonstrations covering a wide variety of subjects are scheduled.

The last day of the conference will be devoted to a planned tour of the Chicago Merchandise Mart to view the 1962 lines of electrical appliances, with manufacturing company home economists on hand to discuss their new products.

Lawson Heads PEA

P. R. LAWSON, Comptroller, Pennsylvania Electric Co., was elected President of the Pennsylvania Electric Association at the group's 54th annual meeting held recently in Philadelphia.

Mr. Lawson succeeds G. R. Parry, Vice President of Metropolitan Edison Co.

Elected Vice Presidents were: P. M. Alden, Philadelphia Electric Co.; C. S. Bowden, Pennsylvania Power Co.; and R. W. Hurd, West Penn Power Co. H. A. Buch was reelected Secretary-Treasurer. F. H. Lichtenwalter continues as Vice President and Managing Director of the group.

In welcoming the more than 800 delegates to Philadelphia, R. G. Rincliffe, President of Philadelphia Electric Co., said the electric power industry is the fulcrum for the lever for all industry, especially in periods when, as today, national and international affairs impose additional pressure upon us and create an atmosphere of dangerous uncertainty.

In this situation the electric utility industry today has a key role in our state and nation. Other industries are heavy contributors to the country's growth, to its economy, and to its defense, but "we furnish the power so they can do their jobs." He said that industrial demands for increasing civilian and defense production will be met because of the nature of the electric utility industry's long-range planning.

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